B. C. STICKNEY.

TYPE WRITING MACHINE.

APPLICATION FILED AUG. 11, 1903.

990,309. Patented Apr. 25, 1911.

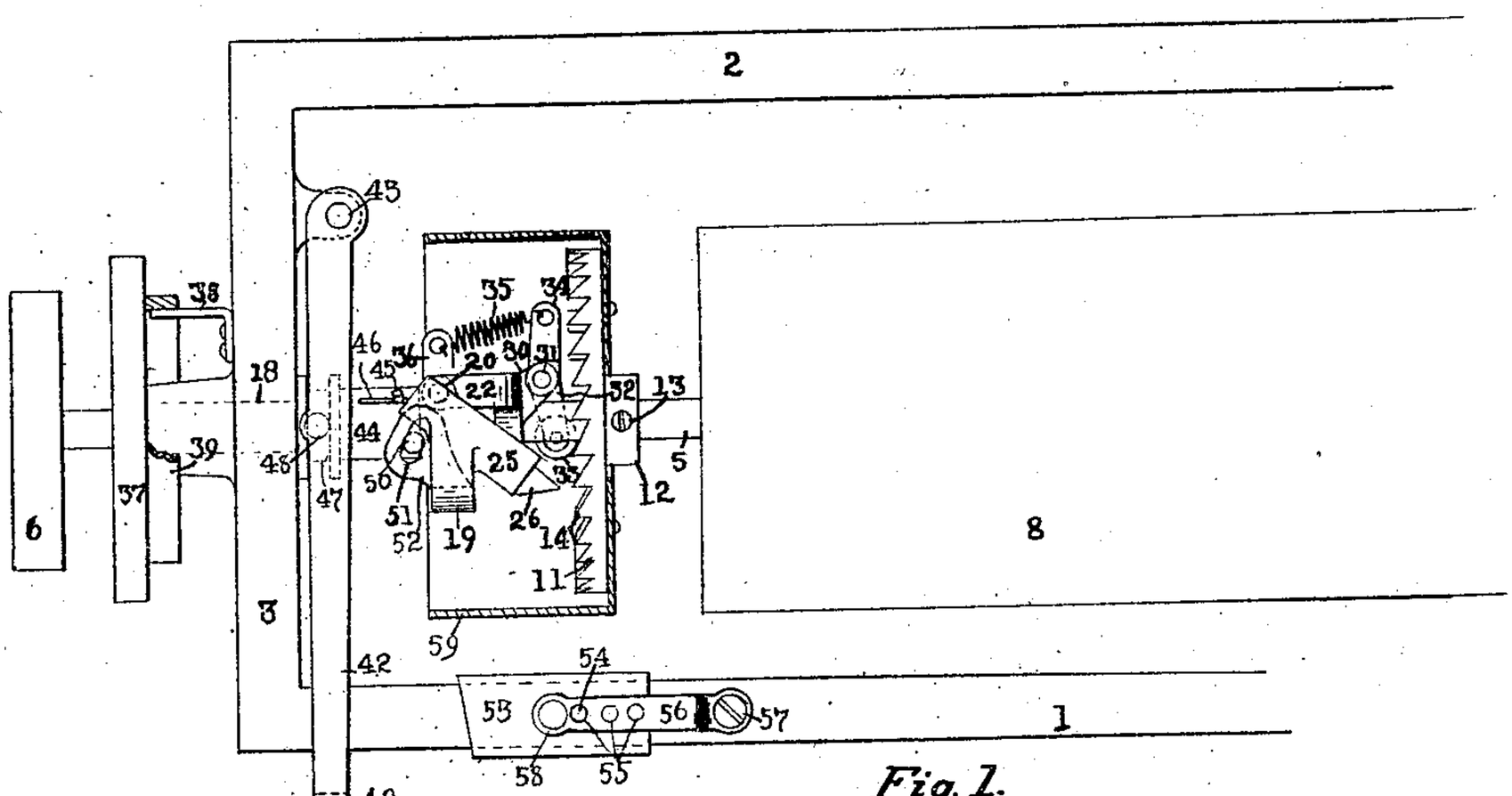

Fig. 1.

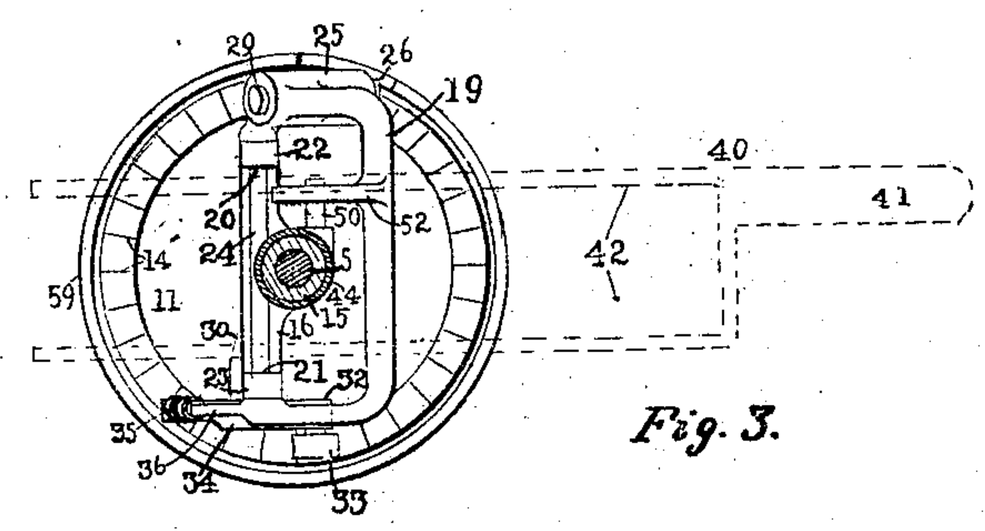

Fig. 3.

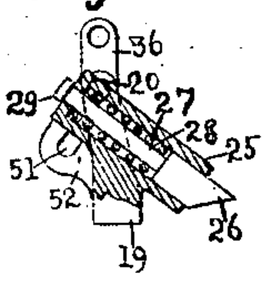

Fig. 2.

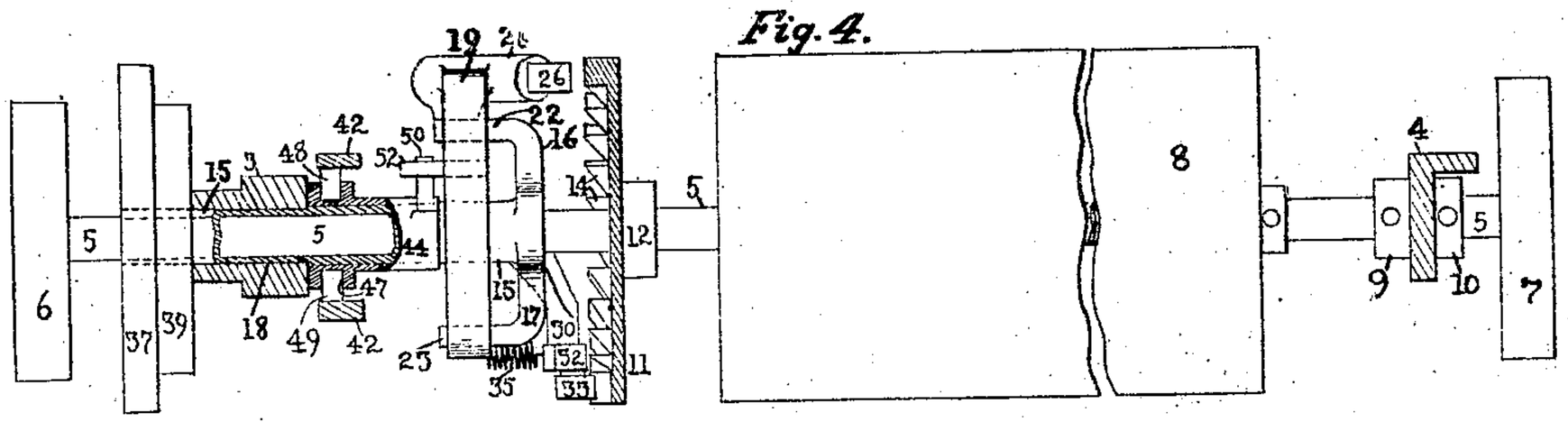

Fig. 4.

WITNESSES

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TYPE-WRITING MACHINE.

990,309. Specification of Letters Patent. Patented Apr. 25, 1911.

Application filed August 11, 1903. Serial No. 169,088.

To all whom it may concern:

Be it known that I, BURNHAM C. STICKNEY, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to the line-feeding mechanism of typewriting machines; and its object is to provide improved means for effecting fine adjustments of the platen and for effecting the line-spacing movements thereof; particularly with a view to compactness of parts and simplicity of construction, with cheapness of manufacture. The invention is not however limited to the uses above named.

In the drawings forming part of this specification, Figure 1 is a plan of a typewriter carriage provided with one form of my improvements. Fig. 2 is a sectional detail of a lever provided with a sliding line-spacing pawl. Fig. 3 is a sectional end elevation of the line-spacing mechanism. Fig. 4 is a sectional front elevation, the casing in which the line-spacing mechanism is inclosed being omitted.

In the several views like parts are identified by like signs.

The drawings show a platen-frame comprising front and rear bars 1 and 2, and end bars 3 and 4. Through said end bars extends an axle 5, provided at each end with a finger-wheel, as at 6 and 7, for rotating a cylindrical platen 8 secured to said axle; collars 9 and 10 being provided for preventing endwise displacement of the axle and platen. Upon the axle within the platen-frame and at the left-hand end of the platen-frame is secured a line-space ratchet wheel 11, by means of a hub 12 and screw 13, the ratchet-teeth 14 being upon the outer face of the wheel.

Line-spacing mechanism adapted to said ratchet-wheel is mounted upon a revoluble head, comprising a hollow shaft 15 having at its inner end near said ratchet-wheel opposite bent arms 16 and 17; said shaft at its outer portion being journaled in the side-bar 3 of the platen-frame, as at 18, and being hollow to afford a bearing for the platen-axle 5 which extends entirely through the same. Said line-spacing mechanism comprises a lever 19, hinged at 20 and 21 upon reflexly bent cross-arms 22 and 23 formed upon said revoluble head; the pintle of the hinge being designated as 24, and said lever having the form of a bail which embraces said bearing arms. Upon one end of the lever is formed a cylindrical housing 25 for a sliding pawl 26, provided within the housing with a compression spring 27 coiled about a stem 28 formed upon the pawl, said stem being provided with a cap 29 to limit the projection of the pawl from the housing. As seen at Fig. 1, the pawl stands normally clear of the line-space ratchet-wheel, so that the platen may be freely rotated by either finger-wheel 6 or 7; while by movement about the axis 24, the pawl may be swung into engagement with the ratchet-wheel to rotate the same. Upon the end of an arm 30, also formed upon said revoluble head, is pivoted at 31 a detent, in the form of a lever, one arm 32 whereof carries a roller 33 which engages the notches in the ratchet-wheel, while the other arm 34 is connected by a draw-spring 35 to an arm 36, the latter forming an extension of one of the bail-arms of the lever 19. The spring thus serves the two-fold purpose of applying pressure to the detent and returning said lever to normal position after actuation.

It will now be perceived that the platen may be rotated by either of its finger-wheels, or given a line-space movement by the lever and pawl; and that it is always held against accidental rotation by the detent; and also that by rotating the revoluble head, together with the lever, pawl and detent thereon, the latter carries with it both the ratchet-wheel and platen; whereby exceptional rotative adjustments of the platen may be effected, together with the paper thereon, thereby facilitating writing upon ruled lines, making corrections, etc.; while at all positions to which the head may be adjusted, the lever and pawl may be operated to effect the line-spacing movement of the platen. For rotating said head, a finger-wheel 37 is provided upon the end thereof that projects from the platen-frame; and for holding the head against accidental revolution a brake is employed, comprising a spring finger 38 secured at one end to the platen-frame and at the other end pressing outwardly against

the inner side of an annulus 39 formed upon the adjacent side of the finger-wheel 37; said brake being sufficiently powerful to hold the revoluble head steady at the line-spacing operation, and being considerably superior in efficiency to the detent 32, so that the resistance of the latter may be overcome without stirring the revoluble head.

A line-spacing lever 40, consisting of a curved finger-piece 41 and a main forked portion 42, which bestrides the front carriage-bar 1 and the platen axle, is mounted upon a vertical pivot 43 in rear of the platen axle, and is adapted to swing from normal position toward the right at Fig. 1, or in the direction of the return movement of the carriage. The connection between said carriage lever and the pawl-carrying lever 19 which is mounted upon the revoluble head, comprises a sleeve 44, splined by means of pin 45 and slot 46 to the tubular member 15 of said revoluble head; said sleeve having at its outer end a groove 47 engaged by opposite pins 48, 49 fixed upon the line-spacing lever 40, and having at its inner end a pin 50 engaging a radial slot 51 formed in a spur 52 formed upon the lever 19. By means of the spline, the sleeve 44 is caused to rotate with the revoluble head, but may move therealong, the latter movement being effected by the pins 48, 49 and annular groove 47, so that the carriage lever 40 may effect a movement of the lever 19 at any point to which the revoluble head may be adjusted, and thereby effect a line-spacing or step-by-step rotation of the platen. It will be seen that the pawl 26, which is normally out of engagement with the line-space wheel, to permit the platen to be rotated by hand freely in either direction, is swung into engagement with the ratchet-wheel by means of the initial movement of the carriage lever 40, and then drives the wheel and platen around the desired distance.

The line-spacing stroke of the carriage lever 40 may be regulated by means of an adjustable stop 53, having the form of a sleeve mounted upon the front carriage-bar 1 in position to be engaged by the upper fork of the lever, to arrest the same at the completion of the line-spacing stroke. The sleeve may be adjusted along the bar, and is provided on its upper side with a projection 54, adapted to be inserted in any one of a series of three holes 55 formed in a yielding keeper 56, the latter being secured to the carriage bar by a screw 57, and provided at its free overlying end with a finger-piece 58, whereby it may be raised clear of the pin 54. The lever 40 will throw one, two or three line-spaces, according to the adjustment of the sleeve-stop 53.

It will be perceived that the spring 35, which controls the ratchet-wheel detent, serves also, by reason of its connection to an arm of the lever 19, to return the latter to normal position after actuation, together with the sleeve 44 and lever 41. It will be further understood that during the line-spacing operation the swing of the arm 36 is sufficient to increase the tension of the spring 35 materially, whereby the detent roller 33 is pressed with great force against the ratchet-wheel at the completion of the line-spacing stroke; and consequently the increased effectiveness of said detent at this moment may be relied upon to prevent overthrow of the platen. That is to say, the pressure of the detent may be normally so slight as to permit free rotation of the platen by the hand-wheels 6 and 7, but may by the described means be rendered so powerful at the completion of the line-spacing movement of the platen as to prevent its overthrow.

As illustrated at Figs. 1 and 3, a cylindrical casing or drum 59 may incase the ratchet-wheel, the revoluble head and the parts thereon, to protect the parts from injury and to contribute to the neat and compact appearance of the machine. In diameter said casing may be equal to or smaller than the platen, so that the paper may pass around the same as freely as it does around the platen, thereby enabling paper of extra width to be used, or enabling an extra wide margin to be left upon one side of the written page. It will be seen that the sheet may pass entirely around the line-space ratchet-wheel, detent and actuating pawl.

It will be seen that I have combined a reciprocatory line-space wheel actuator 19 with means for effecting fine (or variable) adjustments of the platen together with the line-space wheel and said actuator, and means for reciprocating the actuator at any position to which it may be adjusted; although the use of the invention is not limited merely to the securing of fine adjustment, since it is obvious that by turning the wheel 37 the platen, with its appurtenances, may be rotated through a distance equal to many line-space intervals, or as far as desired in either direction; that the line-space pawl 26 is mounted for rotative adjustment about the line-space wheel axis; that the friction device 38, 39 opposes such movement of said pawl; that sufficient rotative force may be applied directly to the platen to overcome the opposition of said detent 33 without rotating the revoluble head, when the spring 35 is in normal condition; that a device 44 is revoluble with said head and movable longitudinally or axially of the platen by the lever 41 for actuating the pawl 26 to rotate the line-space wheel and platen independently of said head; that said head is journaled in the platen frame and provided upon the outer side of said frame with a finger-wheel 37, the platen axle being jour-

naled in said head and extending through the same and being provided with a finger-wheel which is beyond said finger-wheel.

It will be observed that I have combined with a rotary platen having a finger-wheel 6 or 7, two devices 41 and 37, having means for rotating the platen, and each operable independently of the other, one of said devices, 41, constructed to reciprocate and forming part of a mechanism for line-spacing the platen only in forward direction; the other of said devices, 37, constructed to be stationary during the line-spacing operation effected by said reciprocating device 41, and preferably mounted to turn concentrically with the platen, and connected to the platen for rotating the same either forwardly or backwardly through many line-spaces at a single stroke, thus making the machine especially valuable where wide-spaced irregular blanks are to be filled, as well as for other purposes.

Portions of my improvements may be used without others, and variations may be resorted to within the scope of my invention.

Having thus described my invention, I claim:

1. In a typewriting machine, the combination with a platen and a line-space wheel, of a reciprocatory line-space wheel actuator, means for effecting fine adjustments of the platen together with the line-space wheel and said actuator, and means for reciprocating said actuator at any position to which it may be adjusted.

2. In a typewriting machine, the combination with a platen and a line-space wheel, of a pawl for operating said wheel, means, including a finger-wheel, for effecting fine rotative adjustments of the platen together with the line-space wheel and pawl, and means for driving said pawl at any position to which it may be adjusted.

3. In a typewriting machine, the combination with a platen, a line-space wheel, and a spring detent for said wheel, of a reciprocatory line-space wheel actuator, means for effecting fine rotative adjustments of the platen together with the line-space wheel, actuator and detent, and means for reciprocating said actuator at any position to which it may be adjusted.

4. In a typewriting machine, the combination with a platen, a line-space wheel, and a spring detent for said wheel, of a pawl for operating said wheel, said pawl being normally clear of the wheel, means, including a finger-wheel, for effecting fine rotative adjustments of the platen together with the line-space wheel, pawl and detent, means for driving said pawl at any position to which it may be adjusted, and a finger wheel for rotating the platen independently of the detent and pawl.

5. In a typewriting machine, the combination with a platen-frame of a platen mounted thereon, a line-space wheel, a line-space pawl mounted for rotative movement about the line-space wheel axis, a friction device opposing such movement of said pawl, and means, including a lever mounted upon said platen-frame, for reciprocating said pawl to rotate the platen step by step.

6. In a typewriting machine, the combination with a platen-frame of a platen, a line-space wheel, a head mounted for rotation concentrically with the line space wheel, a line space pawl mounted upon said head, a line-space detent also mounted upon said head, and a manually operable part mounted upon the platen frame and effective to operate said pawl.

7. In a typewriting machine, the combination with a platen-frame of a platen, a line-space wheel, a head mounted for rotation and provided with a finger-wheel, a line-space pawl mounted upon said head, a line-space detent also mounted upon said head, and a line-space lever mounted upon the platen frame and effective to operate said pawl.

8. In a typewriting machine, the combination with a platen-frame of a platen, a line-space wheel, a head mounted for rotation and provided with a finger-wheel, a line-space pawl, a lever upon said head whereon said pawl is mounted, a line-space detent also mounted upon said head, and means upon the platen-frame for actuating said lever at all rotative adjustments of said head.

9. In a typewriting machine, the combination with a platen-frame of a platen, a line-space wheel, a head mounted for rotation concentrically with said platen and line-space wheel, a finger-wheel for said head, a lever fulcrumed upon said head, a pawl carried by said lever for driving said line-space wheel, and a lever mounted upon the platen-frame and effective to operate the first-mentioned lever at all adjustments of said head.

10. In a typewriting machine, the combination with a platen-frame of a platen, a line-space wheel, a head mounted for rotation concentrically with said platen and line-space wheel and provided with a finger-wheel rigid thereon, means between said platen-frame and said head for frictionally opposing the rotation of said head, a lever fulcrumed upon said head, a line-space pawl operated by said lever, and a lever mounted upon the platen-frame and effective to operate the first-mentioned lever at all adjustments of said head.

11. In a typewriting machine, the combination with a platen-frame of a platen, a line-space wheel, a head mounted for rotation, means for frictionally opposing the rotation of said head, a finger-wheel for rotating said head, a line-space detent upon

said head, a lever fulcrumed upon said head, a line-space pawl operable by said lever, a lever mounted upon the platen-frame and effective to operate the first-mentioned lever at all adjustments of said head, and a finger-wheel for rotating the platen independently of said head.

12. In a typewriting machine, the combination with a platen-frame of a platen, a line-space wheel, a head provided with a finger-wheel and mounted for rotation concentrically with said platen and line-space wheel, a spring-pressed line-space detent upon said head and constantly engaging said line-space wheel, means between the platen-frame and said head for frictionally opposing the rotation of the latter to such an extent that sufficient rotative force may be applied directly to the platen to overcome the opposition of said detent without rotating said head, a lever rotating with said head, a line-space pawl operable by said lever, and a lever mounted upon the platen frame and effective to operate the first-mentioned lever at all adjustments of said head.

13. In a typewriting machine, the combination with a platen-frame and a platen mounted thereon, of a line-space wheel, a head mounted for rotation, a line-space pawl and line-space detent both revoluble together with said head, a lever mounted upon the platen-frame, and a device also revoluble with said head and movable longitudinally of the platen by said lever for actuating said pawl to rotate said line-space wheel and platen independently of said head.

14. In a typewriting machine, the combination with a platen-frame and a platen mounted thereon, of a line-space wheel, a head mounted for rotation and provided with a finger-wheel, a line-space pawl and line-space detent both revoluble together with said head, a lever mounted upon the platen-frame, and a device also revoluble with said head and movable in axial direction by means of said lever for actuating said pawl to rotate said line-space wheel and platen independently of said head.

15. In a typewriting machine, the combination with a platen-frame of a platen, a line-space wheel, a head mounted for rotation and provided with a finger-wheel, a collar mounted upon said head and movable axially thereof, a line-space pawl mounted for actuation by the axial movement of said collar, and a line-space lever mounted upon the platen-frame and having a part to engage said collar for moving the same in axial direction at all adjustments of said head.

16. In a typewriting machine, the combination with a platen-frame, platen and line-space wheel, of a head mounted for rotation and provided with a finger-wheel, a line-space detent mounted upon said head, a lever also mounted upon said head, a line-space pawl actuable by said lever, a collar splined upon said head and adapted by an axial movement to operate said lever, and a line-space lever mounted upon the platen-frame; one of said collar and line-space lever elements having a groove, and the other having a coöperative projection engaging said groove.

17. In a typewriting machine, the combination with a platen-frame, platen and line-space wheel, of a head mounted for rotation, a line-space detent upon said head, a lever also mounted upon said head, a sliding spring-pressed pawl mounted upon said lever and normally standing clear of said line-space wheel, and means for operating said lever at all adjustments of said head.

18. In a typewriting machine, the combination with a platen-frame, platen and line-space wheel, of a head mounted for rotation and provided with a finger-wheel, a line-space detent upon said head, a lever also mounted upon said head, a pawl actuable by said lever and normally standing clear of said line-space wheel, a lever mounted upon the platen-frame and provided with means for operating the first-mentioned lever at all rotative adjustments of said head, and means for regulating the throw of said pawl.

19. In a typewriting machine, the combination with a platen-frame, platen and line-space wheel, of a head mounted for rotation and provided with a finger-wheel, means for frictionally opposing the rotation of said head, a spring-pressed line-space detent upon said head, a lever also mounted upon said head, a line-space pawl actuable by said lever and normally standing clear of said line-space wheel, a line-space lever mounted upon the platen-frame and provided with means for operating the first-mentioned lever at all rotative adjustments of said head, and an adjustable line-space stop mounted upon one of said platen-frame and line-space lever elements.

20. In a typewriting machine, the combination with a platen-frame, platen and line-space wheel, of a head mounted for rotation, a line-space detent upon said head, a line-space pawl revoluble with said head and normally standing clear of the line-space wheel, a lever mounted upon the platen-frame, a device also revoluble with said head and movable in axial direction by means of said lever for actuating said pawl to rotate said line-space wheel, and means for regulating the throw of the lever.

21. In a typewriting machine, the combination with a platen-frame, platen and line-space wheel, of a head mounted for rotation concentrically with the platen and provided with a finger-wheel, means for frictionally opposing the rotation of said head, a spring-pressed line-space detent mounted upon said

head, a lever also pivoted upon said head and provided with a sliding spring-pressed pawl, a collar splined upon said head and having a pin-and-slot connection with an arm of said lever, and a line-space lever fulcrumed at its rear end in rear of said head and projecting forwardly from the platen-frame and having between its ends a pin-and-slot connection with said collar.

22. In a typewriting machine, the combination with a platen-frame and platen, of a head journaled in the platen frame, a platen axle journaled within the head, a line-space detent mounted upon said head, a line-space pawl also carried by said head, means for actuating said pawl, and a finger-wheel for said head.

23. In a typewriting machine, the combination with a platen-frame, platen and line-space wheel, of a head journaled in the platen frame, a platen axle journaled within the head, an operating-wheel upon said head outside of the platen-frame, a line-space detent and line-space pawl both carried by said head within said platen-frame, and means, including a lever mounted upon the platen-frame, for actuating said pawl at all adjustments of said head.

24. In a typewriting machine, the combination with a platen-frame, platen and line-space wheel, of a tubular head journaled in the platen frame, a platen axle extending within said head, an operating-wheel upon said head outside of the platen-frame, means for frictionally opposing the rotation of said head, a line-space detent and line-space pawl both carried by said head within said platen-frame, a collar mounted within said platen-frame for rotation with said head, a lever mounted upon the platen-frame and having a part for engaging said collar to slide the same axially, and means for enabling said collar by its axial movement to actuate said line-space pawl.

25. In a typewriting machine, the combination with a platen-frame, platen and line-space wheel, of a head journaled in the platen frame, a platen axle extending through said head and provided at its outer end with a finger-wheel, a finger-wheel for rotating said head, a line-space pawl and line-space detent both mounted upon said head, and a manually operable member mounted upon the platen-frame and effective to actuate said pawl.

26. In a typewriting machine, the combination with a platen-frame, platen and line-space wheel, of a head journaled in the platen-frame and provided upon the outer side of said frame with a finger-wheel, a platen axle extending through said head and provided at its outer end with a finger wheel which is beyond the first-mentioned finger-wheel, a line-space pawl and line-space detent both mounted upon said head within the platen-frame, and means for actuating said line-space pawl.

27. In a typewriting machine, the combination with a line-space ratchet-wheel and a platen, of a spring-pressed detent engaging said ratchet-wheel and adapted to slip over the teeth thereof, and means for effecting rotative adjustment of said detent and ratchet-wheel together about the axis of the rotatable wheel.

28. In a typewriting machine, the combination with a line-space ratchet wheel and a platen, of a spring-pressed detent engaging said ratchet wheel and adapted to yieldingly hold the same against rotation, means for effecting rotative adjustment of said detent and ratchet-wheel together, and a line-space pawl also rotatively adjustable with said ratchet-wheel.

29. In a typewriting machine, the combination with a revoluble platen, of a handle, mechanism operated by the handle for imparting a step-by-step rotation thereto, and means for effecting fine rotative adjustments of the platen together with said mechanism.

30. In a typewriting machine, the combination with a revoluble platen, of a handle, mechanism operated by the handle for imparting a step-by-step rotation and for detaining the platen at the completion of each step-by-step rotative movement, and means for effecting fine rotative adjustments of the platen together with said mechanism.

31. In a typewriting machine, the combination with a platen, a line-space ratchet wheel, a pivoted detent, and a spring for said detent, of means for temporarily increasing the tension of said spring at the completion of the line-spacing movement of the platen.

32. In a typewriting machine, the combination with a platen, a line-space ratchet wheel, a detent, a line-spacing pawl, and a line-spacing lever, of a single spring connected to both said detent and said line-spacing lever.

33. In a typewriting machine, the combination with a revoluble platen and a line-space ratchet wheel, of a finger-wheel for rotating said platen, a detent engaging said ratchet wheel and offering light resistance to the rotation of the platen by said finger-wheel, mechanism for effecting step-by-step rotation of the line-space wheel and platen and for preventing overthrow of the platen, said mechanism being inclusive of a line-space pawl which normally stands clear of the line-space wheel, a lever for actuating said mechanism, and adjustable means for regulating the throw of the line-space wheel and platen; said platen being revoluble together with said line-space wheel, said detent and said rotation mechanism.

34. In a typewriting machine, the combination with a revoluble platen and a line-space ratchet wheel, of a finger-wheel for ro-

tating said platen, a detent engaging said ratchet wheel and offering light resistance to the rotation of the platen by said finger-wheel, and mechanism for effecting step-by-step rotation of the line-space wheel and platen and for preventing overthrow of the platen; said platen being revoluble together with said line-space wheel, said detent and said rotation-mechanism.

35. In a typewriting machine, the combination with a revoluble platen and a line-space ratchet wheel, of a finger-wheel for rotating said platen, a spring-pressed detent engaging said ratchet wheel and offering light resistance to the rotation of the platen by said finger-wheel, and mechanism for effecting step-by-step rotation of the line-space wheel and simultaneously increasing the pressure of said detent; said platen being revoluble together with said line-space wheel and detent.

36. In a typewriting machine, the combination with a revoluble platen and a line-space ratchet wheel, of a finger-wheel for rotating said platen, a spring-pressed detent engaging said ratchet wheel and offering light resistance to the rotation of the platen by said finger-wheel, a line-space pawl normally clear of said ratchet wheel, means for actuating said pawl and simultaneously increasing the pressure of said detent, and means for effecting fine rotative adjustments of said platen together with said line-space wheel, detent and pawl.

37. In a typewriting machine, the combination with a revoluble platen and a line-space ratchet wheel, of a finger-wheel for rotating said platen, a spring-pressed detent engaging said ratchet wheel and offering light resistance to the rotation of the platen by said finger-wheel, a line-space pawl normally clear of said ratchet wheel, a line-space lever mounted upon the platen-frame and effective to actuate said pawl, means controlled by said lever for increasing the pressure of said detent, and means, including a finger wheel, for effecting fine rotative adjustments of said platen together with said line-space wheel, detent and pawl, and means at said lever for variably arresting the same in its platen-rotating stroke.

38. In a typewriting machine, the combination with a revoluble platen and a line-space ratchet wheel, of a finger-wheel for rotating said platen, a detent engaging said ratchet wheel, a spring pressing said detent lightly against said ratchet wheel, a lever mounted upon the platen frame, and means between said lever and said ratchet-wheel for intermittently rotating the latter, said rotating means being normally disengaged from said ratchet wheel, and said lever being returned to normal position by said spring.

39. In a typewriting machine, the combination with a platen-frame, a revoluble platen and a line-space ratchet wheel, of a finger-wheel for rotating said platen, a detent engaging said ratchet wheel, a spring pressing said detent lightly against said ratchet wheel, a lever mounted upon the platen-frame, means between said lever and said ratchet-wheel for intermittently rotating the latter, said rotating means being normally disengaged from said ratchet wheel but engageable therewith, and said lever being returned to normal position by said spring, and means, including a finger-wheel, for effecting fine rotative adjustments of said platen together with said line-space wheel, detent and intermittent rotating-means.

40. In a typewriting machine, the combination with a platen-frame, a revoluble platen and a line-space ratchet wheel, of a finger-wheel for rotating the platen, a detent, a spring pressing said detent lightly against said ratchet wheel, a revoluble head whereon said detent is mounted, a finger-wheel for rotating said head, means for frictionally opposing the rotation of said head, a lever connected to said spring and mounted on said head, a pawl mounted upon said lever and normally free of said ratchet wheel, and a lever mounted upon the platen-frame for actuating the first-mentioned lever at any position to which said head may be adjusted, and provided with stroke-regulating means.

41. In a typewriting machine, the combination with a platen and a revoluble head, of means upon said revoluble head for effecting intermittent rotation of the platen, said rotating means including a pawl, and a lever mounted upon the platen-frame and adapted to operate said platen-rotating means at all points to which said head may be rotated.

42. In a typewriting machine, the combination with a platen of a revoluble head, means, including a pawl reciprocable upon said head and adapted to effect intermittent rotation of the platen, and a member mounted upon the platen-frame and movable axially of said revoluble head, and adapted to actuate said pawl.

43. In a typewriting machine, the combination with a platen of a revoluble head, means, including a line-spacing pawl reciprocable upon said head, for effecting intermittent line-spacing movements of the platen, a member mounted upon the platen-frame, and movable axially of said revoluble head, and adapted to actuate said pawl, and means for automatically preventing overthrow of the platen at the line-space operation.

44. In a typewriting machine, the combination with a platen-frame of a platen, a line-space wheel, a head mounted for rota-

tion about the platen axis, a line-spacing pawl mounted upon said head, a line-spacing detent also mounted upon said head, said head, pawl and detent being inclosed, and a manually operable part mounted upon the platen frame and effective to operate said pawl.

45. In a typewriting machine, the combination with a platen-frame of a platen, a line-space wheel, a head mounted for rotation concentrically with said platen and provided with a finger-wheel, a line-space pawl mounted upon said head, a line-spacing detent also mounted upon said head, a casing for said head, ratchet-wheel, pawl and detent, and a line-spacing lever mounted upon the platen frame and effective to operate said pawl.

46. In a typewriting machine, the combination with a platen-frame of a platen, a finger-wheel therefor, a line-space wheel, a head mounted for rotation concentrically with said platen and provided with a finger-wheel, a platen axle extending through said head, a line-spacing pawl mounted upon said head, a line-spacing detent also mounted upon said head, a cylindrical casing for said head, pawl and detent, said casing not exceeding the diameter of the platen, and a line-spacing lever mounted upon the platen frame and effective to operate said pawl.

47. In a typewriting machine, the combination with a platen-frame and platen of a line-spacing wheel, a head mounted for rotation in the platen frame, a finger-wheel rigid with said head, a platen axle extending through said head and finger-wheel and bearing at its outer end a finger-wheel, a line-spacing pawl mounted upon said head, a line-spacing detent also mounted upon said head, a line-spacing lever mounted upon the platen-frame and effective to operate said pawl, and a brake for said head.

48. The combination with a platen and a line-space lever, of means for making either coarse or fine adjustments of one of said elements relatively to the other, and an intervening line-space wheel and devices operated by said lever to turn said wheel; said wheel and turning devices being adjustable as a mass together with said adjustable element.

49. The combination with a platen frame, of a stop adjustable thereon to secure different throws of the line-spacing mechanism, a line-space lever to engage said stop, a platen, a line-space wheel, a detent, and means for adjusting said detent and line-space wheel and platen to an unlimited extent altogether independently of said lever and stop.

50. In a platen line-spacing mechanism, the combination with a platen, and a toothed line-space wheel, of a drive-pawl mechanism and a line space detent normally engaging said wheel and both mounted to revolve about the platen axis at the line-spacing operation; said detent normally stationary during the revolution of the platen.

51. In a platen mechanism, a line-space detent revoluble with the platen about the axis of the latter, and normally in engagement with a line-space wheel, in combination with a friction device for holding it where adjusted; said detent normally stationary during the revolution of the platen.

52. In a platen mechanism, a finger-piece and a line-space detent revolubly adjustable to an unlimited extent about the platen axis by means of said finger-piece and normally in engagement with a line-space wheel; said detent normally stationary during the revolution of the platen.

53. The combination with a revoluble platen and two coöperating levers, as 42 and 19, of means for effecting rotative adjustment of one of said levers about the platen axis while the other lever may always operate said rotative lever.

54. The combination with a cylindrical platen, of means enabling it to be turned through equal line-spacing intervals and holding it where set, the holding means also rotatable either with or without the platen, and movable regularly by a lever wherever set.

55. A revoluble platen in combination with a line-space detent which has a stationary position during the ordinary rotation of the platen, and which is revoluble to an unlimited extent with the platen.

56. In a typewriting machine, the combination with a revoluble line-space wheel, of a frame revolubly adjustable about the axis of said wheel, a brake or the like to hold said frame stationary during the revolution of the wheel, line-spacing mechanism on said frame, and means for adjusting the frame.

57. In a typewriting machine, the combination with a platen and a platen frame, of a V-shaped lever, as 19, pivoted on an axis transverse to the platen axis and embracing the platen axle, a pawl on said lever, and a lever upon the platen frame having means to operate the first lever.

58. The combination with a finger-wheel, as 37, and a platen revoluble by said finger-wheel, of an intermediate line-space driving pawl mechanism revoluble with the platen.

59. The combination with a platen, and a line-space drive-pawl mechanism revoluble therewith, of a lever upon the platen frame to operate said mechanism.

60. The combination with a platen, and a line-space drive-pawl mechanism revoluble therewith, of a lever upon the platen frame to operate said mechanism, and means upon the platen frame for regulating the stroke of the lever.

61. In combination, a revoluble line-space wheel, and a pawl normally disengaged therefrom, but revolubly adjustable therewith, and capable of operating at any point in the revolution of the platen.

62. The combination with a platen and a platen frame having a front bar, of a slide upon said bar, a yielding detent to hold said slide in any of three positions, and a line-space lever mounted upon the platen frame and having means to operate the platen and arrestable by said slide.

63. In a typewriting machine, the combination with a platen and a platen frame, of a lever forked to embrace the platen frame and having a pin, a collar sliding upon the platen axle and groove to engage the pin, and means operated by the collar for rotating the platen.

64. In a typewriting machine, the combination with a platen and a platen frame, of a line space wheel connected to the platen, a collar on the platen axle having a cross head, a U-shaped lever hinged upon the cross head and having a pawl to engage the ratchet wheel, and a lever to operate said U-shaped lever.

65. In a typewriting machine, the combination with a revoluble platen and a platen frame, of a head mounted on the platen frame to turn concentrically with the platen, a brake to resist turning of said head, a line-space wheel, a spring check or detent, one of said wheel and detent elements mounted on the platen and the other on said head, and a finger wheel on said head.

66. In a typewriting machine, the combination with a line-space ratchet wheel and a platen, of a spring-pressed detent engaging said ratchet wheel and adapted to yieldingly hold the same against rotation, means for effecting rotative adjustment of said detent and ratchet wheel together through strokes each equal to many line-space intervals, and a line-space pawl also rotative with said ratchet wheel.

67. In a typewriting machine, the combination with a revoluble platen, of mechanism for imparting a step-by-step rotation thereto, and means for effecting strokes of the platen together with said mechanism through a stroke equal to many line space intervals and back to initial position.

68. In a typewriting machine, the combination with a platen and a platen frame, of a head mounted for revolution in the platen frame, the platen having an axle extending through the head, a manually rotatable device upon an end of the head that projects from the platen frame, and a brake for preventing accidental rotation of said head, a line-space ratchet wheel, and a detent being provided between said head and the platen to enable the head to rotate the platen.

69. The combination with a rotary platen having a finger wheel, of two devices having means for rotating the platen and each operable independently of the other, one of said devices constructed to reciprocate and forming part of a mechanism for line-spacing the platen only in forward direction, and the other of said devices constructed to be stationary during the line-spacing operation effected by said reciprocating device, and connected to the platen for rotating the same both forwardly and backwardly, through many line-spaces at a single stroke.

70. The combination with a rotary platen having a finger-wheel, of two devices having means for rotating the platen and each operable independently of the other, one of said devices constructed to reciprocate and forming part of a mechanism for line-spacing the platen only in forward direction, and the other of said devices constructed to be stationary during the line-spacing operation effected by said reciprocating device and mounted to turn concentrically with the platen and connected to the platen for rotating the same both forwardly and backwardly, through many line-spaces at a single stroke.

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