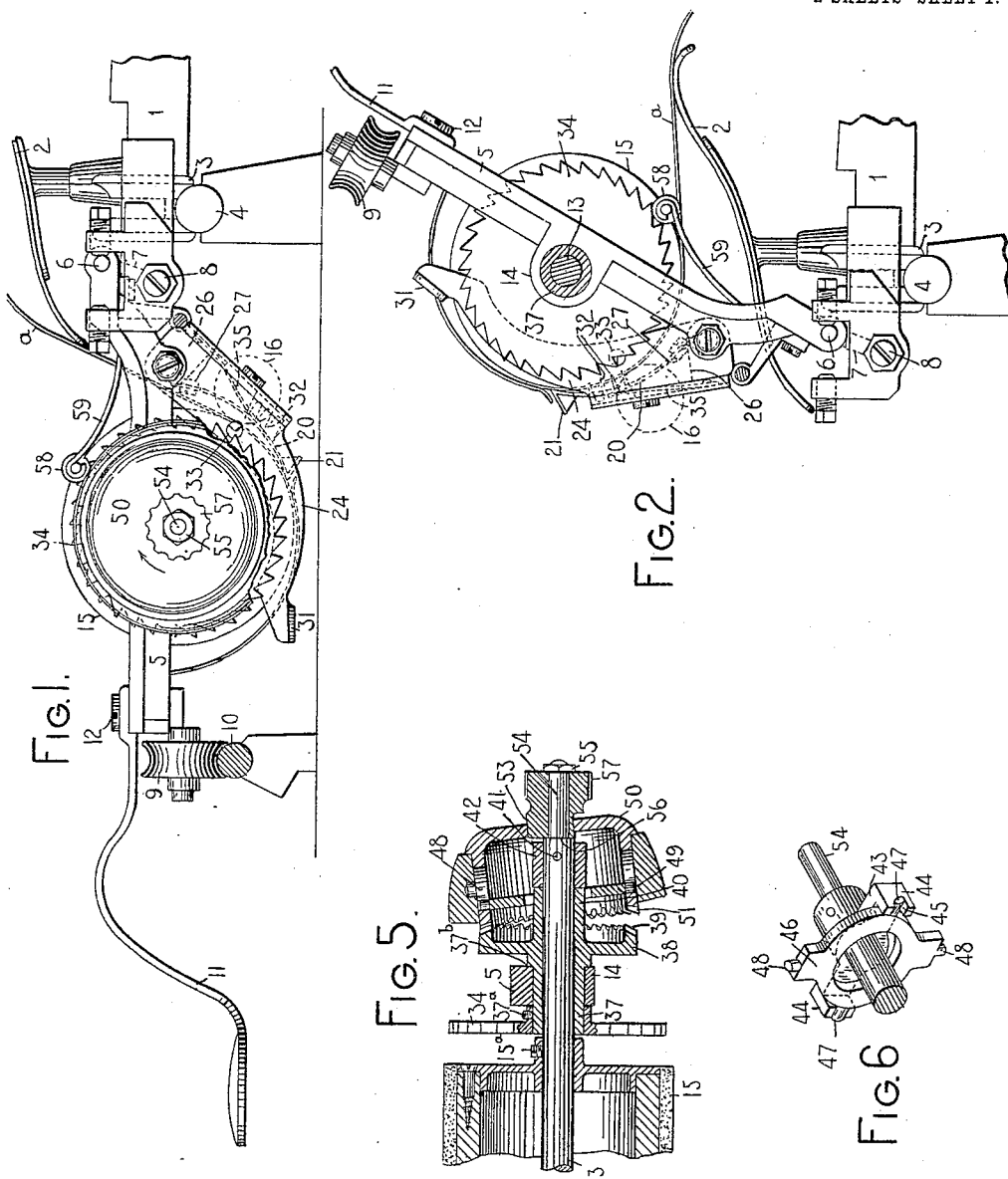


No. 800,729.

PATENTED OCT. 3, 1905.

W. C. FARNUM.  
TYPE WRITING MACHINE.  
APPLICATION FILED MAR. 21, 1903.

2 SHEETS—SHEET 1.



WITNESSES=

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*Charles Smith*

INVENTOR=

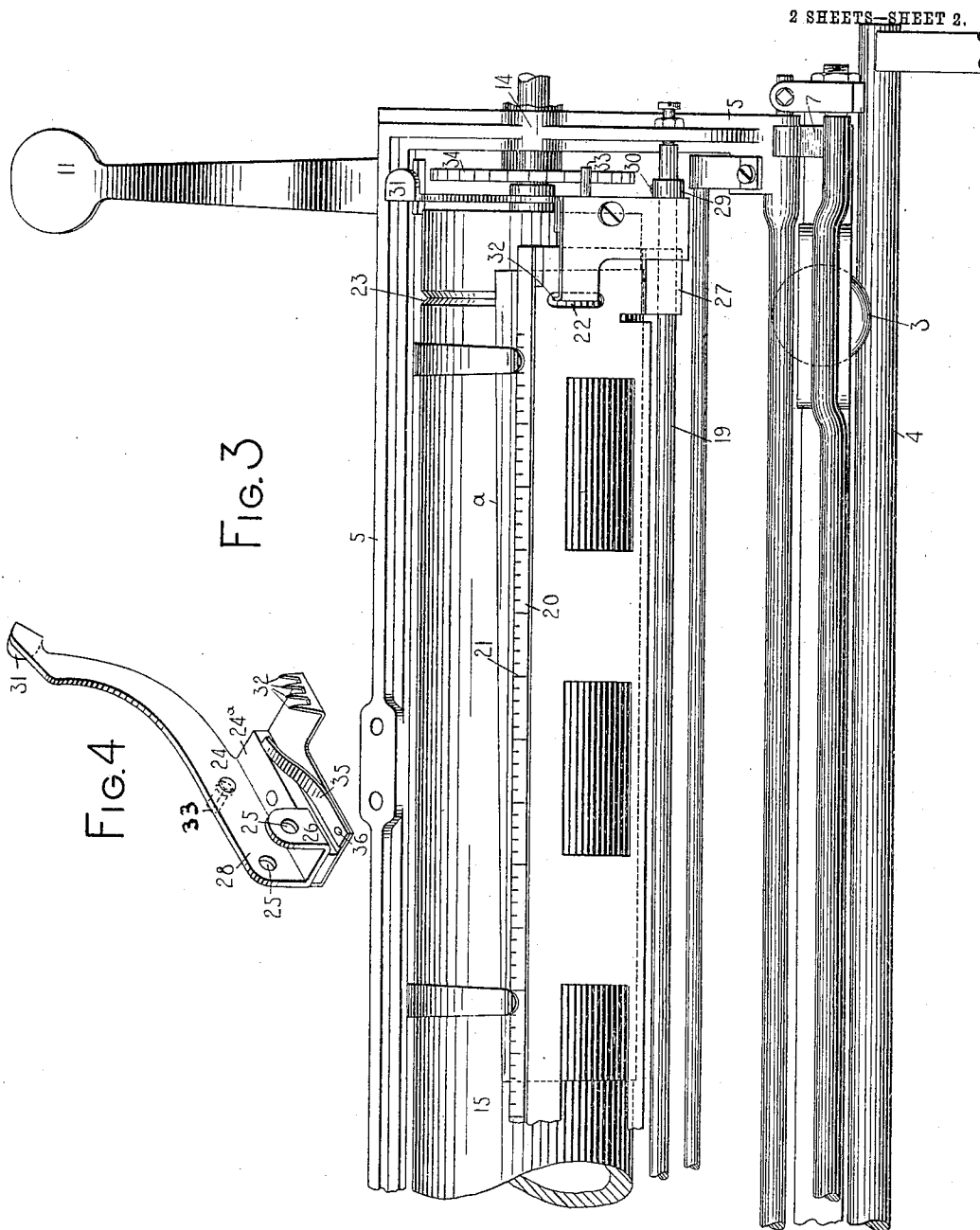
*Wm. C. Farnum*  
by *Jacob Feltel*  
HIS ATTORNEY

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2 SHEETS—SHEET 2.



# UNITED STATES PATENT OFFICE.

WILLIAM C. FARNUM, OF ARLINGTON, VERMONT, ASSIGNOR TO WYCKOFF, SEAMANS & BENEDICT, OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

## TYPE-WRITING MACHINE.

No. 800,729.

Specification of Letters Patent.

Patented Oct. 3, 1905.

Application filed March 21, 1903. Serial No. 148,943.

*To all whom it may concern:*

Be it known that I, WILLIAM C. FARNUM, a citizen of the United States, and a resident of Arlington, in the county of Bennington and State of Vermont, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to type-writing machines, and more particularly to means for effecting an adjustment of the paper; and the object of said invention is to provide simple and efficient means of the character specified.

To the above and other ends, which will hereinafter appear, my invention consists in the combinations of devices, arrangements of parts, and features of construction to be hereinafter described, and particularly pointed out in the appended claims.

In the accompanying drawings, wherein like reference characters indicate corresponding parts in the various views, Figure 1 is a fragmentary end view of a paper-carriage with the features of my invention shown applied thereto. Fig. 2 is a like view of the same with parts sectioned away and showing the platen swung back. Fig. 3 is an enlarged fragmentary front elevation of the carriage and showing the carriage swung back to a position corresponding to that shown in Fig. 2. Fig. 4 is a detail perspective view of a paper-engaging device. Fig. 5 is a detail longitudinal sectional view of the right-hand end of the platen and the fractional line-spacing mechanism. Fig. 6 is a detail perspective view of a portion of the fractional line-spacing mechanism.

While I have illustrated one form of construction embodying my invention applied to the carriage of a No. 6 Remington type-writing machine, it should be understood that various features of the invention may be applied to other characters of writing-machines.

The truck 1 of the machine supports a paper-table 2 and is provided with traverse-rollers 3, which support the carriage in its movement from end to end of the machine on the traverse-rod 4. A platen-frame 5 is pivoted at 6 to links 7, which in turn are pivoted at 8 to the truck, so as to enable the platen-frame to be swung back to the position shown in Figs. 2 and 3. The forward portion of the platen-frame carries a traverse-roller 9, that is supported upon a shift-rail 10, and

the usual finger-piece 11 is secured at 12 to the platen-frame. A platen-shaft 13 is mounted in bearings 14 in the platen-frame and supports a platen 15, which is secured to the platen-shaft by a set-screw 15<sup>a</sup> and is adapted to revolve therewith. Suitable feed-rollers 16 (diagrammatically illustrated in Figs. 1 and 2) are carried by the platen-frame and cooperate with the platen to feed the paper *a*. A rod 19 extends from side to side of the platen-frame and constitutes a pivot or support for a paper-apron 20, which carries the usual paper-scale 21 at its front end or edge and has a slot or aperture 22 therein for purposes which will hereinafter more clearly appear.

In the right-hand end of the platen and outside of the field of writing is a circumferential groove 23, which is in line with the slot or aperture in the paper-apron, as indicated in Fig. 3. Pivoted to the rod 19 is a so-called "paper-engaging" device 24, that is illustrated in detail in Fig. 4, where it will be seen that the body portion of the device is provided with bearing-openings 25, that are seated on the rod 19, and the arm 26, in which one of these bearings is formed, abuts against the bearing 27 of the paper-apron and prevents an inward movement of the paper-engaging device along the rod 19, whereas the other arm or portion 28 of the engaging device bears against an adjustable collar 29, secured to the rod 19 by a set-screw 30, thus preventing an outward movement of the paper-engaging device along the rod 19. The engaging device is extended forwardly, so as to form a lever, and is fashioned into a finger-key at its forward end, and when the platen is swung back to the position shown in Fig. 3 this finger-piece is in a position to be readily grasped by the operator. Projecting from the engaging device is a series of tines 32, which are adapted to be projected through the slot 22 in the paper-apron and into the groove 23 in the platen, so that the points of the tines will extend below the periphery of the platen in order to perforate or puncture the paper *a* near one side edge thereof, and thus engage and hold that side of the paper against feed movement in either direction. Extending laterally from the engaging device is a pin 33, which when the engaging device is in the operative position is brought into engagement between the teeth of a line-spacing ratchet-wheel 34 on the platen-shaft, and

this pin constitutes means for locking the line-spacing ratchet-wheel against rotation and for limiting the movement of the tines on the engaging device toward the platen and preventing them from reaching contact therewith, so that while the tines engage the paper they do not engage the platen and it is free to rotate independently of the paper at the point where it is engaged by the tines. The portion 24<sup>a</sup> of the engaging device is adapted to contact with the platen when said engaging device is moved to the operative position and to constitute additional means for limiting the movement thereof toward the platen. A leaf-spring 35 is secured at one end 36 to the engaging device and bears at its opposite end against the paper-apron, as represented in dotted lines in Fig. 1. The tension of the spring is exerted to normally force the tines to a position outside of the aperture 22 in the paper-apron and to maintain them out of contact with the paper.

The line-spacing ratchet-wheel 34, hereinbefore referred to, is mounted upon and secured to a sleeve 37 by a set-screw 37<sup>a</sup>. The sleeve 37 surrounds and is loosely mounted on the platen-shaft 13 and is seated loosely in the bearing 14 at the right-hand side of the platen-frame and is (with the parts connected thereto) prevented from moving along the shaft and toward the platen by a circumferential shoulder 37<sup>b</sup> on the sleeve bearing against the side of the bearing 14 in which the sleeve is seated. This sleeve 37 is formed integral with a gear 38, provided with bevel-teeth 39, and the gear has an integral oppositely-disposed sleeve 40 projecting therefrom and surrounding the shaft 13. Secured to the shaft by a pin 41 is the hub 42 of a cross-bar 43, which constitutes one member of a gimbal or universal joint. This cross-bar has lugs 44 extending at right angles thereto, in which pivotal bearings or slots 45 are provided. The second or cooperating member 46 of the gimbal joint is provided with pivots 47, that are seated in the bearings 45 of the other member 43 of the gimbal or universal joint, and is likewise provided with pivots 48, that extend at right angles to the pivots 47 and which are seated within bearings 49 in a cup-like thumb-wheel 50. This thumb-wheel is provided with bevel-teeth 51 in excess of the number of teeth on the gear 38. The end of the sleeve 40 bears against the hub 42, and thus prevents an outward movement of the line-spacing ratchet-wheel and the parts connected thereto along the platen-shaft. The finger-wheel 50 has a central aperture therein that receives an eccentric 53, and the longitudinal axis of this eccentric is at an angle to the platen-shaft, so that the finger-wheel is at all times maintained disposed as represented in Fig. 5, with the plane of the teeth 51 at an angle to the plane of the teeth 39 and with the teeth 51 and 39 in constant mesh. The eccentric 53 has a

bearing-opening by which it is received upon the reduced portion 54 at the right-hand end of the platen-shaft and is permitted to turn freely thereon. The outer extremity of the reduced portion is threaded and is provided with a nut 55, which retains the eccentric on the reduced portion and against the shoulder 56, formed on the shaft where the reduced portion joins the main body of the shaft 13. The eccentric has formed integrally therewith a finger-wheel 57, by means of which it may be turned, and the turning of this finger-wheel is effective to roll the gear or finger wheel 50 through the eccentric, so as to bring the various teeth thereof successively into mesh with the various teeth on the gear 38, and this movement is effective to produce a differential movement between the line-spacing ratchet-wheel and platen. Thus, for instance, the finger-wheel 50 being connected to the platen-shaft by the gimbal-joint, the two will rotate together and will cause the platen to rotate relatively to the line-spacing wheel when the finger-wheel 57 is turned. This is due to the fact that the line-spacing wheel is held at this time by a detent-roller 58, supported by a spring 59, which is secured at one end to the platen-frame. A rotation of the finger-wheel 50 will, however, cause the platen-shaft, the gear-wheel 38, and the line-spacing ratchet-wheel to rotate together against the tension of the spring 59 of the detent-roller in order that the platen may be turned regular line-space distances. It will be understood that the usual hand-actuated feed-pawl (not shown) is likewise employed to cooperate with the ratchet-wheel 34 for regular line-spacing.

The fractional line-spacing mechanism shown and described is essentially the same as that embodied in my Patent No. 752,214, dated February 16, 1904, and further detail description thereof is unnecessary. It should be understood, however, that any suitable fractional line-spacing mechanism may be employed and that from certain aspects of my invention it is unnecessary to employ fractional line-spacing mechanism in connection with the paper-adjusting means hereinbefore described, though I prefer to employ some form of fractional line-spacing mechanism, inasmuch as it affords a nicer adjustment of the platen and the paper.

Upon reference to Fig. 3 it will be observed that the paper *a* is illustrated therein as having been improperly fed or positioned on the platen. This is readily observed by a comparison of the leading edge of the paper with the paper-scale 21. In order to properly adjust or straighten the paper, it is merely necessary to move the finger-piece 31 to the rear, when the platen is swung back, as represented in Figs. 2 and 3, thereby bringing the tines 32 on the engaging device into contact with the paper, and the pointed ends thereof will be projected through the paper in order

to retain the side edge thereof thus engaged against movement with the platen. The finger-wheel 57 may then be rotated in either direction and while the engaging device still engages the paper, so as to effect a feed movement of the disengaged side edge of the paper in order that it may be properly straightened. For instance, when the paper is in the position represented in Fig. 3 it is merely necessary for the operator, after having engaged the right-hand side edge of the paper by means of the paper-engaging device, to turn the finger-wheel 57 in the direction of the arrow in Fig. 1. This will result in the left-hand edge of the paper being fed forward with the platen, and when the leading edge of the paper is parallel with the paper-scale the paper-engaging device may be released. If the left-hand edge of the paper is at a higher elevation or farther advanced than the right-hand edge, a turning of the finger-wheel 57 backward or in an opposite direction from that indicated by the arrow in Fig. 1 will result in lowering or feeding the left-hand side of the paper backward, while the right-hand side is retained against movement relatively to the rotation of the platen.

While I have stated herein that the tines 32 engage the paper near one side edge thereof and retain the engaged edge against feed movement with the platen while the other side edge of the paper is moved with the platen, it will be understood that in operation the paper will receive a slight turning or pivotal movement around the tines during the rotation of the platen; that there will be a differential feed movement of the paper between that side portion of the paper which is engaged by the tines and the opposite side edge of the paper; that the speed of the feed of the paper gradually decreases from the disengaged side edge thereof to the opposite side portion of the paper, where it is engaged by the tines, and that there is a retardation in the feed of the paper near where it is engaged by the tines, whereas the opposite edge portion is fed with the platen at the normal rate of speed.

It will be observed that by these means the paper-feed devices are employed in connection with the paper engaging or retaining or retarding device to readily and accurately effect a proper adjustment or positioning of the paper in the machine and that there is no necessity of handling the paper in order to effect such adjustment and that a differential feed movement of one portion of the paper relatively to another portion may be effected in order to straighten the paper in the machine.

Instead of employing the tines 32 to engage the paper and hold it against movement any suitable gripping or engaging device may be employed for this purpose, and various other changes in construction may be embodied without departing from the spirit of my invention.

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

1. In a type-writing machine, the combination with paper-feeding devices, of means auxiliary to the said paper-feeding devices for affording a differential feed movement of one portion of the paper relatively to another portion thereof without affecting said paper-feeding device.

2. In a type-writing machine, the combination with paper-feeding devices, of means that are normally out of operation for effecting a feed of one side portion of the paper at a different rate of speed than the other side portion thereof.

3. In a type-writing machine, the combination with paper-feeding devices, of means normally out of operation for effecting a differential feed movement of one portion of the paper relatively to another portion thereof.

4. In a type-writing machine, the combination with paper-feeding devices, of means that are normally out of operation for retarding the feed movement of the paper at one portion thereof.

5. In a type-writing machine, the combination with paper-feeding devices, of means for engaging the paper at one side thereof and preventing a feed movement of that portion of the paper thus engaged.

6. In a type-writing machine, the combination of a platen, and means that are normally out of operation for affording a differential feed movement of the paper with the platen.

7. In a type-writing machine, the combination of a platen, paper-feeding devices, and means that are normally out of operation for causing one side of the paper to travel with the platen at a greater rate of speed than the other side portion of the paper.

8. In a type-writing machine, the combination of a platen, and hand-operated controlling means for causing one side of the paper to travel with the platen at a greater rate of speed than the other side of the paper, said controlling means being normally maintained in the inoperative position.

9. In a type-writing machine, the combination of a platen, a paper-engaging device fixed with relation to the rotation of the platen, and hand-operated means for moving said engaging device into engagement with the paper so as to arrest the movement of one portion thereof and to permit a free feed movement of another portion of said paper.

10. In a type-writing machine, the combination of a carriage, a platen, a paper-engaging device pivoted to the carriage and adapted to arrest the movement of the paper at one portion thereof and to permit a free movement thereof with the platen at another portion of the paper, and a finger-piece for controlling the movement of said engaging device.

11. In a type-writing machine, the combination of a carriage, a platen, a paper-engaging

device pivoted to the carriage near one end of the platen and maintained normally free of the paper and adapted to arrest the movement of the paper at one side thereof and to permit  
5 a free movement thereof with the platen at the other side of the paper, and a finger-piece for controlling the movement of said engaging device.

12. In a type-writing machine, the combination of a platen, and a paper-engaging device that is normally out of operation and is adapted to engage and retard the feed movement of the paper at one side thereof without affecting the feed movement of the platen.

13. In a type-writing machine, the combination of a platen, and a paper-engaging device that is adapted to engage and retard the feed movement of the paper at one side thereof without affecting the feed movement of the platen, means for normally maintaining the engaging device out of engagement with the paper, and hand-operated means for moving said engaging device into engagement with the paper.

14. In a type-writing machine, the combination of means for feeding the paper, and one or more tines independent of the paper-feeding means and adapted to engage and hold the paper at the engaged portion thereof.

15. In a type-writing machine, the combination of a platen, cooperating paper-feeding devices, and one or more tines independent of the paper-feeding devices and adapted to engage the paper without engaging the platen.

16. In a type-writing machine, the combination of a platen and a paper-engaging device fixed relatively to the rotation of said platen and having one or more tines that are adapted to engage and hold the paper at the engaged portion thereof.

17. In a type-writing machine, the combination of a platen, a pivoted paper-engaging device fixed relatively to the rotation of said platen, and having one or more paper-engaging tines, and means for moving said engaging device into and out of engagement with the paper.

18. In a type-writing machine, the combination of a platen, a pivoted paper-engaging device near one end of the platen, one or more paper-engaging tines on said device, means for normally maintaining said tine or tines out of contact with the paper, and means for moving the tine or tines into engagement with the paper to afford a differential feed movement of one side thereof relatively to the other.

19. In a type-writing machine, the combination of a platen having a circumferential groove therein, and a paper-engaging device adapted to engage the paper and to cooperate with said groove to hold the paper at the engaged portion thereof without interfering with the rotation of the platen.

20. In a type-writing machine, the combina-

tion of a platen having a circumferential groove therein, and a paper-engaging device having one or more pointed tines adapted to puncture the paper and to pass into said groove and be maintained out of engagement with the  
70 platen.

21. In a type-writing machine, the combination of a platen having a circumferential groove therein near one end, and a pivoted paper-engaging device that is fixed with relation to the rotation of the platen and which is adapted to puncture the paper at the circumferential groove in the platen and to retain the portion of the paper thus engaged against feed movement.

22. In a type-writing machine, the combination of a platen having a circumferential groove therein near one end, a pivoted paper-engaging device that is fixed with relation to the rotation of the platen and which is adapted to puncture the paper at the circumferential groove in the platen and to retain the portion of the paper thus engaged against feed movement, a spring for normally maintaining the engaging device out of contact with the  
90 paper, and a finger-piece for effecting such engagement.

23. In a type-writing machine, the combination of a carriage, a revolving platen mounted therein and having a circumferential groove therein near one end, a paper-engaging device pivoted to the carriage near the circumferential groove in the platen, and having one or more tines adapted to puncture the paper at the groove in the platen without engaging the  
100 platen, a spring for normally maintaining the tines out of engagement or contact with the paper, and a finger-piece for moving the engaging piece and causing the tines to puncture the paper.

24. In a type-writing machine, the combination of a carriage, a revolving platen mounted therein and having a circumferential groove therein near one end, paper-feeding devices that cooperate with the platen, a paper-engaging device pivoted to the carriage near the circumferential groove in the platen and which is fixed against movement relatively to the rotation of the platen, said engaging device having one or more tines adapted to  
110 puncture the paper at the groove in the platen without engaging the platen, a spring for normally maintaining the tines out of engagement or contact with the paper, and a finger-piece for moving the engaging piece and causing the tines to puncture the paper, whereby the paper may be straightened or squared by the platen while the engaging device engages and holds a portion of the paper against movement.

25. In a type-writing machine, the combination of a platen, paper-feeding devices which cooperate therewith, means for engaging the paper and retaining a portion of it fixed against movement while another portion of  
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the paper is fed by the platen and the cooperating paper-feeding devices.

26. In a type-writing machine, the combination of a platen, paper-feed rollers, and means for affording a differential feed of one side of the paper from the other by said platen and feed-rollers.

27. In a type-writing machine, the combination of paper-feeding devices, and means for holding one side of the paper while another side is being adjusted by said paper-feeding devices:

28. In a type-writing machine, the combination of a platen, a lever fixed relatively to the line-feed movement of the platen, and engaging means carried by said lever and adapted to engage the paper at one side only thereof to effect a differential feed of one side of the paper from the other by a feed movement of the platen.

29. In a type-writing machine, the combination of a platen, a line-spacing wheel therefor, a paper-engaging device adapted to engage the paper at one portion thereof and to afford a feed movement of another portion of the paper, and means controlled by said engaging device for preventing a rotation of the line-spacing wheel.

30. In a type-writing machine, the combination of a platen, a line-spacing wheel therefor, a fractional line-spacing device, a paper-engaging device adapted to engage the paper at one side thereof and to afford a feed movement of the other side of the paper, and means controlled by said engaging device for preventing a rotation of the line-spacing wheel.

31. In a type-writing machine, the combination of a platen, a paper-engaging device adapted to move toward and away from the platen and to engage and hold the paper against feed movement at one portion thereof, and means for limiting said engaging device in its

movement toward the platen and so that the paper-engaging portion thereof will not bear against the platen.

32. In a type-writing machine, the combination of a platen, means for effecting a rotation of the platen through regular line-space distances, a fractional line-feed device, a paper-engaging device adapted to move toward and away from the platen and to engage and hold the paper against feed movement at one portion thereof, and means controlled by the movement of said paper-engaging device to automatically lock the regular line-spacing means so that paper can only be moved by said fractional line-feed device.

33. In a type-writing machine, the combination of a platen, a paper guide or apron with an aperture therein, and a paper-engaging device having a tine or tines adapted to pass through said aperture and to engage the paper.

34. In a type-writing machine, the combination of a platen, a line-spacing wheel, fractional line-feed mechanism, and means for locking the line-spacing wheel and holding the paper at one portion thereof while another portion is being moved by the fractional line-feed mechanism.

35. In a type-writing machine, the combination of a platen, and means for holding one portion of the paper against adjustment while another portion of the paper is being adjusted by a rotation of the platen.

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 March, A. D. 1903.

WILLIAM C. FARNUM.

Witnesses:

E. M. WELLS,

K. V. DONOVAN.