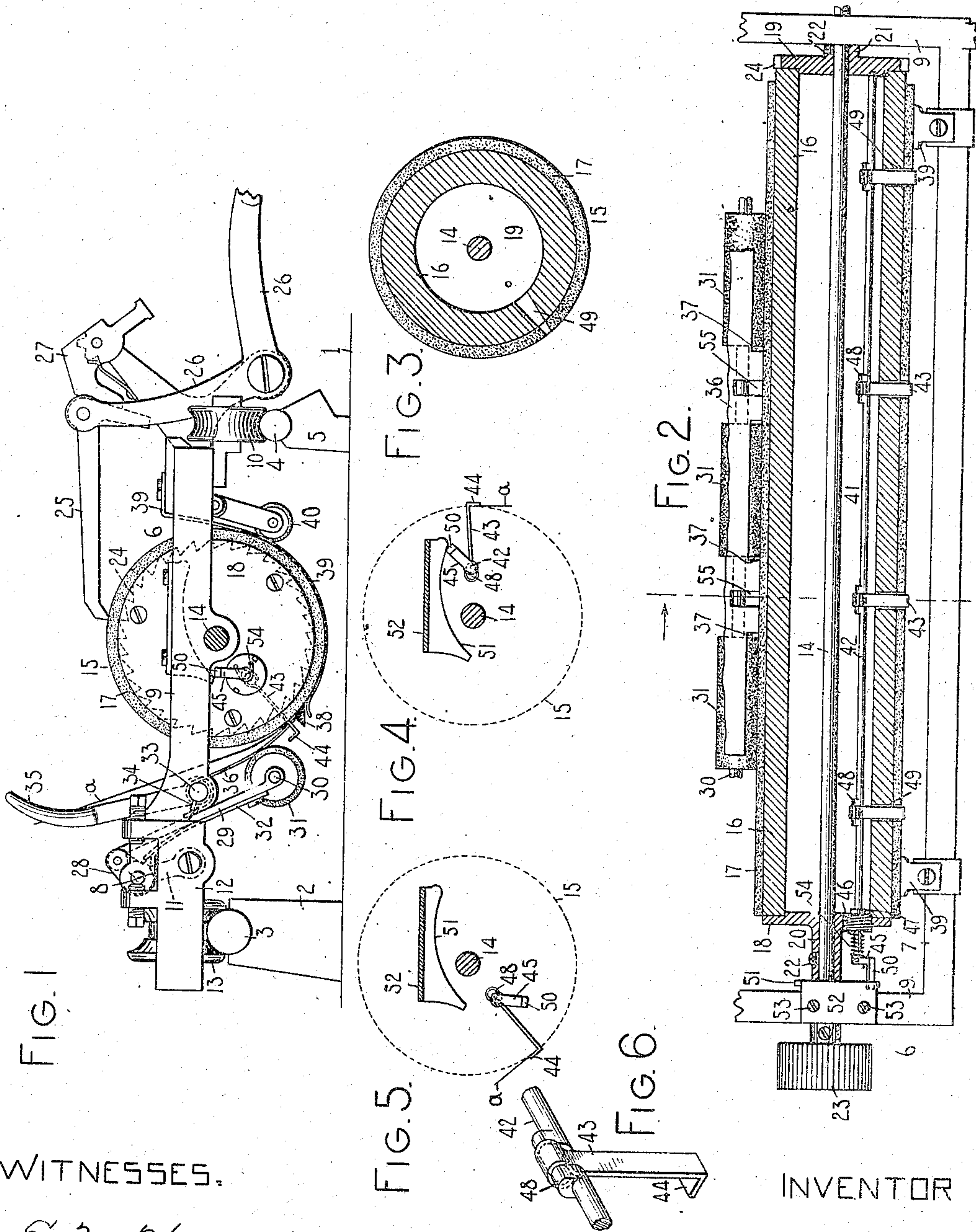


930,499.

Patented Aug. 10, 1909.



WITNESSES.

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ALFRED F. SMITH, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO WYCKOFF, SEAMANS & BENEDICT, OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

No. 930,499.

Specification of Letters Patent.

Patented Aug. 10, 1909

Application filed December 24, 1904. Serial No. 238,213.

To all whom it may concern:

Be it known that I, ALFRED F. SMITH, a citizen of the United States, and resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to typewriting machines and more especially to the paper feeding mechanism of such machines.

One object of my invention is to provide a card holding device of improved construction.

Another object of my invention is to provide a device which serves as a stop or aliner for the leading edge of the paper or card which is to be written upon.

Other objects will subsequently appear.

To the above ends, my invention consists of the features of construction, combinations of devices and arrangements of parts to be hereinafter more fully set forth and particularly pointed out in the concluding claims.

I have shown my invention as embodied in the well-known No. 6 Remington typewriting machine, but it may, of course, be applied to other forms of writing machines.

In the accompanying drawings, Figure 1 is a view taken from the left-hand side of a typewriting machine and showing the upper part of said machine with my invention embodied therein, parts of the machine being omitted or broken away. Fig. 2 is a fragmentary sectional view taken on a plane passed horizontally through the axis of the platen, but showing the frame of the platen carrier in full lines. This view is drawn on a somewhat smaller scale than Fig. 1. Fig. 3 is a view drawn on the scale of Fig. 1 and taken on a plane represented by the line $x-x$ of Fig. 2, said Fig. 3 showing only the platen and its axle. Figs. 4 and 5 are diagrammatic views illustrating different positions of the mechanism embodying my invention. Fig. 6 is an enlarged perspective detail view.

In the drawings, 1 indicates the top plate; 2, one of the posts supporting a back rail 3; 4, a shift rail; and 5, one of the supports thereof. The platen carrier 6, comprising essentially a front bar 7, a rear rod 8 and side bars 9, supports, at its front, a roller 10, which coöperates with the shift rail 4. The

platen carrier is connected by links 11 (one of which only is shown) with a carriage truck 12, which latter supports rear rollers 13 (of which only the left-hand one appears in the drawings), said rear rollers coöperating with the back rail 3. A platen axle 14, having its bearings in the side bars 9, supports a platen 15, said platen comprising a wooden core 16, an outer sheath or cover 17 of rubber or the like, and platen ends or disks 18 and 19. Integral with the platen ends 18 and 19 are sleeves 20 and 21 which are formed with tapped holes to receive set screws 22, which screws fixedly secure the platen to its axle. The ends of the axle are provided with the usual platen finger wheels of which only the left-hand one 23 appears in the drawing. The periphery of the right-hand platen end 19 is formed with ratchet teeth 24, which coöperate with a line space pawl 25 carried by a line space lever 26; said pawl and line space lever, together with the line space regulator 27, comprising the essentials of the usual and ordinary line spacing mechanism of the machine.

The back rod 8 is formed with ears 28 which pivotally support downwardly and forwardly extending arms 29, and pivoted at the lower ends of these arms is a rod 30 on which are mounted feed rolls 31. Each arm 29 is provided at its under side with a spring 32 which constantly presses the lower end of said arm 29 toward the platen. A rod 33 is rotatably supported in the side bars 9 near their rear ends, and integral with this rod are rearwardly and upwardly projecting fins 34 which are adapted to contact with projecting portions of the arms 29. The rod 33 is provided at its left-hand side with a finger lever 35 which, when actuated rearwardly, rotates the rod 33 so that the fins 34 thereon, pressing against the arms 29, swing the latter downwardly and rearwardly and thus move the feed rolls 31 away from their normal position against the platen to the position indicated in Fig. 1. The rod 33, which may be termed the feed roll release rod, supports a paper apron or scale plate 36 which is perforated as indicated at 37 to permit the feed rollers 31 to move to and from the platen. The scale plate 36 terminates at its lower end in a scale 38. Paper fingers 39 are mounted on the front bar 7 of the platen carrier and associated with each paper finger is a feed roll 40.

The mechanism thus far described, is similar in most respects and may be said generally to be that of the No. 6 Remington typewriter, and I do not, therefore, deem it necessary to illustrate or describe it with any greater degree of particularity.

The card holding device to which my invention is partly directed, may be indicated, as a whole, by the reference 41, and comprises first, a shaft 42; secondly, a plurality of gripping fingers 43, the latter terminating in right-angled ends 44; and thirdly, a crank member 45. As best appears in Fig. 2, the shaft 42 is disposed longitudinally of the platen within the wooden core 16; and the right-hand end of said shaft has its bearing in a depression or recess in the inner face of the right-hand platen head 19, while near its left-hand end said shaft is supported in a plug-like member 46. The periphery of the member 46 is threaded, allowing said member to be screwed into a tapped hole in the left-hand platen head 18. Abutting the inner face of the member 46 and fixedly secured to the shaft or rod 42, is a collar 47 which prevents endwise motion of said shaft 42 after it has once been properly mounted in place.

As best appears in Fig. 6, the shaft 42 is formed with a series of crank-like projections or off-sets 48, and embracing or surrounding each off-set 48 is one of the gripping fingers 43. The gripping fingers are preferably formed of thin strips of metal and each projects through a hole 49 in the platen and radially of the latter. The crank member 45, which is fixedly secured to the left-hand end of the shaft 42, is preferably right-angled, the outer arm 50 being adapted to contact with the working face 51 of a cam 52, which, as herein shown, is secured to the left-hand bar 9 of the platen carrier by screws 53. That portion of the shaft 42, which is outside the platen and between the member 46 and the crank 45, is surrounded by a coiled spring 54, which normally holds the card holder in a position relative to the platen indicated in Figs. 2, 4 and 5, that is, with the ends 44 of the gripping fingers in contact with the surface of said platen.

Suppose that in operation the platen be rotated on its axis from the position indicated in Fig. 5 to that indicated in both Figs. 2 and 4, in which latter position the arm 50 of the crank member 45 is shown as it appears when it first contacts with the working face of the cam 52. If now, the platen be further rotated in line space direction, either by actuating the line space lever 26 or by turning the platen finger wheel 23 or otherwise, the card holder 41 will turn bodily with the platen, but the cam face 51, acting on the crank arm 50, serves to retard the latter, thereby causing the shaft 42 to rotate in its bearings in a direction the reverse of that

in which the platen is being turned and against the force exerted by the coiled spring 54. In other words, as the shaft 42 revolves about the axle 14, said shaft, under the influence of the cam 52, rotates on its own axis and in the opposite direction. As the shaft 42 revolves and rotates, the relative positions of the crank portions or off-sets 48 are altered in respect of the platen axle 14 and the center of the shaft 42. At the beginning of retardation of the crank arm 50, the crank portions 48 are between the platen axle 14 and the center of rotation of the shaft 42, as appears in Fig. 4. Near the end of the retardation of the crank arm 50, as appears in Fig. 1, the off-set portions have revolved about the center of rotation of the shaft 42 so far that said off-set portions are between the surface of the platen and the center of rotation of the shaft 42. In other words, the off-set portions have completed a half circle of revolution about the center of rotation of the shaft 42 and have moved from a position nearest to the platen axle 14, as indicated in Fig. 4, to a position farthest from said platen axle, as indicated in Fig. 1. The result is that the gripping fingers 43, which, it will be recalled, are mounted on the off-set portions 48, have been gradually moved longitudinally outward from the center of the platen until the finger ends 44, which, at the beginning of retardation, as indicated in Fig. 4, were in contact with the platen, stand now, as the end of retardation is approached (Fig. 1), at some distance away from the surface of the platen. It will be understood that the outward longitudinal movement of the gripping fingers begins at the beginning of the contact between the arm 50 of the crank member with the cam face 51, and is caused as the platen is rotated in line space direction to continue automatically in a path which is substantially radial of the platen as long as the contact between these parts 50 and 51 continues. As, therefore, the gripping fingers approach the paper apron 36, their ends stand somewhat away from the surface of the platen. In order not to interrupt the line space movement of the platen, the paper apron 36 is formed with rectangular openings 55 through which the outstanding gripping fingers freely pass. When the position of the gripping fingers, indicated in Fig. 1, is attained, the finger lever 35 is actuated rearwardly until the feed rolls 31 are moved to the position shown in said Fig. 1, and thereafter the card or sheet, indicated by the reference *a*, is inserted into the machine between the platen and the paper apron 36, so that the top or leading edge of said card or sheet *a* contacts with the gripping fingers 43. If, after the insertion of the paper, the platen be further actuated in a line space direction, the crank arm 50 will pass out of contact with the cam. As soon as the crank arm 50 is

free from the cam, the coiled spring 54 rotates the shaft 42 in line space direction, thereby bringing the off-set portions 48 of said shaft once more between the center of rotation of said shaft and the platen axle 14 and causing the ends 44 of the gripping fingers to automatically grip the leading edge or top of the card or sheet *a* firmly against the surface of the platen, the gripping fingers moving back into the platen in paths which are substantially radial of said platen. The parts will now be in the position indicated in Fig. 5. The lever 35 is next released permitting the feed rolls 31, under the influence of the springs 32, to press the card or sheet against the platen behind the gripping fingers. These latter are restored to gripping position before they can contact with the scale 38 so that, if the platen be further actuated in line space direction, the card or sheet will be fed around the platen between the latter and the feed rolls 30, paper apron 36, paper fingers 39 and feed rolls 40, if the said paper fingers 39 and feed rolls 40 are so disposed as to take in the width of the card or sheet *a*. Usually, however, the paper fingers 39 and their associate feed rolls are positioned comparatively close to the side bars 9 of the platen carrier, and when so located, one or both of them would not, as a rule, be in a position to feed the card, which is usually much narrower than the distance between the paper fingers indicated in Fig. 2.

During the entire feeding movement of the card, from the position indicated in Fig. 5 to that indicated in Fig. 4, its leading edge will be gripped or held closely in contact with the surface of the platen by the gripping fingers 43, so that even without the aid of the paper fingers 39 and their associate feed rolls the card may be readily and smoothly fed through the machine. Since the leading edge of the card is held in contact with the platen the said card may be written on very close to its top, which is a desideratum. It will, of course, be understood that the character and position of the operating cam may be altered so as to vary the position at which the gripping fingers grip the paper, the number of degrees of the arc of rotation of the platen during which the fingers shall hold the paper, or shall be actuated outwardly, and so forth.

The card holder or gripper possesses an additional function of great importance, in that the fingers 43 may serve as a leading edge stop for the paper and as a means for truing or alining said leading edge with the axis of the platen. The gripping arms reach the limit of their outward longitudinal movement and immediately thereafter are snapped back into gripping position against the platen at a point in the line space movement of said platen which is fixed and invariable. In some forms of that kind of commercial work

known as "bill and charge" work, in which the same paper is written upon in the machine at intervals and is removed from the machine between the times when entries are made, it is essential that the paper shall be fed into the machine each time from a starting point which shall be unvarying. My device will perform the functions of a leading edge stop for bill and charge work in which a fixed starting point is a prerequisite, and, of course, for other forms of work in which a fixed starting point is not a requisite; as well as the functions of a card holder.

I am aware that various devices have hitherto been made for gripping and holding the leading edge of a card or sheet while it is being fed around the platen and I am further aware that devices have also been made which serve as leading edge stops, that is as stops to position and aline the leading edge of a sheet; but in none of the devices hitherto employed, so far as I am aware, has the card holding and leading edge stop device been automatically actuated, and I desire to claim this feature broadly without being limited to the particular construction hereinbefore shown and described.

Various changes may be made in the form of the parts and in the relative arrangement and disposition thereof, and the construction of the invention as I have shown it may be altered in whole or in part, all without departing from the spirit and scope of my invention.

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

1. In a typewriting machine, the combination of a platen, a gripping finger mounted in said platen and protrusive therethrough, and means for automatically moving said finger in a direction substantially radial of the platen into and out of operative position.

2. In a typewriting machine, the combination of a platen carrier, a platen rotatable thereon and provided with a plurality of openings, stops movable in said openings, and means including a device fixed to said platen carrier for automatically moving said stops into and out of operative position during the rotary movements of the platen.

3. In a typewriting machine, the combination of a platen, a shaft mounted on said platen, a plurality of gripping fingers mounted on said shaft and protrusive through said platen, an arm mounted on said shaft, and a cam adapted to coact with said arm so as to cause the said shaft to rotate and thereby move the gripping fingers in a direction substantially radial of the platen.

4. In a typewriting machine, the combination of a platen, a shaft mounted on said platen, said shaft being provided with crank portions or off-sets, gripping fingers mounted on the off-sets on said shaft, a crank arm fixedly connected with said shaft, and a cam

adapted to coact with said crank arm, thereby causing the shaft to rotate and the gripping fingers thereon to move in paths substantially radial of said platen.

5 5. In a typewriting machine, the combination of a platen, a shaft mounted on said platen, said shaft being provided with crank portions or off-sets, gripping fingers mounted on the off-sets on said shaft, a crank arm
10 fixedly connected with said shaft, a spring adapted to rotate said shaft in one direction, and a cam adapted to coact with said crank arm thereby causing said shaft to rotate
15 against the force of said spring, and the gripping fingers to move in paths substantially radial of said platen.

6. In a typewriting machine, the combination of a platen, a stop rod rotatably mounted within the body of said platen, and having
20 crank portions or off-sets, leading edge stops mounted upon said off-sets and projecting outward radially of the platen, a spring adapted to rotate said stop rod in one direction, and a cam adapted to rotate said stop
25 rod in the opposite direction, the rotation of said stop rod causing said leading edge stops to be actuated radially of the platen and out of and into position to cooperate with the leading edge or top of the paper.

30 7. In a typewriting machine, the combination of a rotary platen, a paper feed roll, means for moving said feed roll into and out of operative position, means for holding the paper in a fixed relation with the platen, and
35 means controlled by the rotation of the platen for automatically moving said last recited means to position to cooperate with the leading edge of the paper after it has passed between said platen and said paper feed roll.
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8. In a typewriting machine, the combination of a cylindrical rotary platen, a paper feed roll, means for moving said paper feed roll into and out of operative position, and
45 means controlled by the rotation of the platen for clamping the leading edge of the paper to the platen, said means being automatically operated at a predetermined point in the rotation of the platen and when said
50 clamping means are in position to cooperate with the paper after the leading edge thereof has passed said paper feed roll.

9. In a typewriting machine, the combination of a platen, a paper feed roll, means for
55 moving said feed roll into and out of operative position, means for squaring the leading edge of the paper and for holding it in a fixed relation with the platen, and means controlled by the rotation of the platen for automatically actuating said last recited means at
60 a predetermined point to grip or hold the paper after it has passed between said platen and said paper feed roll.

10. In a typewriting machine, the combination of a revoluble platen having a plural-

ity of openings, a combined device for squaring the work sheet and holding it against the platen in its squared position, said device being mounted on the platen and comprising
70 stops movable in the openings in the platen, the stops cooperating with one of the edges of the work sheet to square the latter and the gripping or holding part of said device being movable into and out of operative position with said stops, and means for actuat-
75 ing said device.

11. In a typewriting machine, the combination of a revoluble platen having a plurality of openings, a combined device for squaring the work sheet and holding it against the
80 platen in its squared position, said device being mounted on the platen and comprising stops movable in the openings in the platen, the stops cooperating with one of the edges of the work sheet to square the latter and
85 the gripping or holding part of said device being movable into and out of operative position with said stops, a spring constantly tending to maintain said device in gripping position, and automatic means cooperative
90 with said device to overcome said spring.

12. In a typewriting machine, the combination of a platen, gaging means for squaring the work sheet, and means for automatically actuating the gaging means.
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13. In a typewriting machine, the combination of a revoluble platen, gaging means for squaring the work sheet so that it may be written on in lines parallel with its top and bottom edges, and means for actuating
100 said gaging means automatically at predetermined points in the revolution of the platen.

14. In a typewriting machine, the combination of a revoluble cylindrical platen having a plurality of openings, a plurality of stops movable in said openings and cooperative with an edge of the work sheet to square the latter, and automatic means for
105 moving said stops outwardly so as to bring said stops into operative position at a predetermined point in the revolution of the platen.
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15. In a typewriting machine, the combination of a rotary platen, gaging means for
115 squaring the work sheet, and means for automatically actuating said gaging means, part of said means being controlled by rotative movements of the platen.

16. In a typewriting machine, the combination of a rotary platen, gaging means on
120 the platen for squaring the work sheet, and means on the platen frame operating automatically during the rotative movements of the platen on said gaging means to bring it
125 to operative position.

17. In a typewriting machine, the combination of a platen frame, a platen journaled thereon, means mounted on the platen for squaring the work sheet and for holding the
130

work sheet at one of its edges, and means on the platen frame operating automatically to actuate said squaring and holding means during rotative movements of the platen.

18. In a typewriting machine, the combination of a platen, means for squaring an edge of the paper and for holding it clamped to the platen, said means being mounted on the platen, means coöperative with the platen to control the paper at one side of the printing point on the platen when the clamped edge of the paper has been drawn to the opposite side of the printing point, and means for automatically actuating the first recited means.

19. In a typewriting machine, the combination of a platen, means for squaring an edge of the paper and for holding it clamped to the platen, said means being mounted on the platen, means coöperative with the platen to control the paper at one side of the printing point on the platen when the clamped edge of the paper has been drawn to the opposite side of the printing point, and means for automatically actuating the first recited means in a direction substantially radial of the platen in two directions, said means clamping the paper when moved in one direction and releasing the paper when moved in the opposite direction.

20. In a typewriting machine, the combination of a platen, a gripping finger for holding an edge of a work sheet clamped to the platen, means for automatically actuating said finger both to clamp and to release the work sheet during rotary movements of the platen, and paper controlling means coöperative with the platen to control the work sheet at one side of the printing point when the clamped edge of the work sheet has been drawn to the opposite side of the printing point.

21. In a typewriting machine, the combination of a platen carrier, a platen rotatable thereon, a paper feed roll mounted on said platen carrier and coöperative with said platen, means on the platen for holding the paper in a fixed relation with said platen, and means controlled by the rotation of the platen for automatically moving the last recited means to position to coöperate with an edge of the paper after the paper has passed between the platen and the paper feed roll.

22. In a typewriting machine, the combination of a platen carrier, a platen rotatable thereon, a paper feed roll pivotally mounted on the platen carrier and coöperative with said platen, means mounted on the platen

for clamping the leading edge of the work sheet thereto, and means automatically operating at a predetermined point in the rotation of the platen to cause said clamping means to clamp the leading edge of the work sheet after said leading edge has passed between the feed roll and the platen.

23. In a typewriting machine, the combination of a platen carrier, a platen rotatable thereon, means for squaring the work sheet and for clamping it against the platen, and means comprising a cam fixed on said platen carrier for automatically actuating said squaring and holding means to clamp the work sheet against the platen.

24. In a typewriting machine, the combination of a platen carrier, a platen rotatable thereon, means mounted on the platen for squaring the work sheet so that it may be written on in lines parallel with its top and bottom edges and for clamping the work sheet at one of said edges against the platen, and means comprising a cam fixed to the platen carrier for automatically actuating said means at a predetermined point during the rotation of the platen to clamp the work sheet against the platen.

25. In a typewriting machine, the combination of a platen carrier, a platen rotatable thereon, line spacing devices for rotating said platen step by step to space between the lines of writing, a rod mounted on the platen, a paper clamp mounted on said rod, and means comprising a cam fixed on said platen carrier for automatically rotating said rod during step-by-step line spacing movements of the platen and thereby causing said clamp to clamp the work sheet against the platen.

26. In a typewriting machine, the combination of a platen carrier, a platen rotatable thereon, line spacing devices for rotating said platen step-by-step to space between the lines of writing, a rod mounted on the platen, a plurality of clamps mounted on said rod, a spring adapted to rotate said rod in one direction, and a cam fixed on said platen carrier for automatically rotating said rod in the opposite direction during step-by-step line spacing movements of the platen, the rotation of said rod causing the clamps to clamp the work sheet against the platen.

Signed at Pittsburg, in the county of Allegheny, and State of Pennsylvania, this 15th day of December A. D. 1904.

ALFRED F. SMITH.

Witnesses:

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