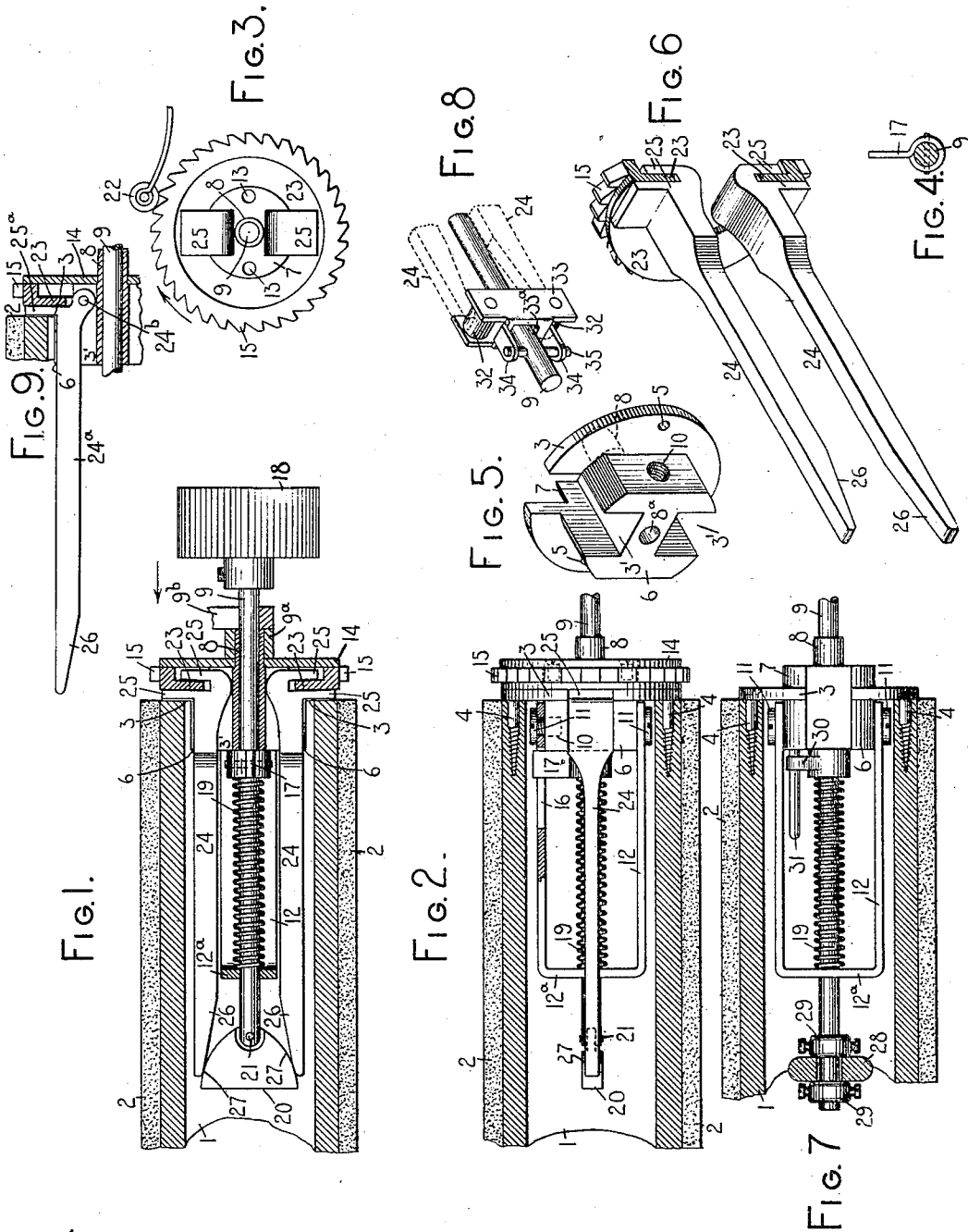


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O. WOODWARD.
TYPE WRITING MACHINE.
APPLICATION FILED DEC. 30, 1902.



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TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 784,368, dated March 7, 1905.

Application filed December 30, 1902. Serial No. 137,132.

To all whom it may concern:

Be it known that I, OSCAR WOODWARD, a citizen of the United States, and a resident of the borough of Manhattan, city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to line-spacing mechanisms for type-writing machines whereby the platen may be rotated through regular line-space distances and may also be turned through irregular or fractional line-space distances. Heretofore in such constructions where frictional mechanism has been employed to connect the line-space ratchet-wheel with the platen great difficulty has been encountered by reason of the ineffectiveness of the frictional mechanism to work perfectly under all conditions of use, but more particularly when the line-space lever is actuated violently or suddenly with considerable force, and at which time there is a liability of failure of the platen to turn equally with the line-space ratchet-wheel, owing to the insufficient grip or friction of the connecting devices, and hence unequal line-spacing will result where it is not intended or desired.

The object of my invention is to overcome the above and other difficulties heretofore presented and to provide simple and efficient mechanism for effecting such a firm and enduring engagement between the platen and the line-spacing ratchet-wheel that no matter how gently or how violently the latter may be actuated the platen shall always turn co-extensively therewith, which at the same time provides a construction such that the platen may be readily disconnected from the ratchet-wheel, so as to be turned independently of the latter in either direction for the insertion of a letter, word, or line in any type-written matter, or for the printing of lines at distances apart not permitted by the ratchet-wheel, or for writing words and lines in blank spaces of printed forms which require a feed movement of the platen different from that predetermined by the regular line-spacing mechanism.

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

In the accompanying drawings, forming part of this specification, Figure 1 is a central longitudinal sectional view of the right-hand end of a type-writer platen, illustrating one form of my invention in connection therewith. Fig. 2 is a similar view of the same, taken at a right angle to the position of the parts shown in Fig. 1 and with the platen-head and ratchet-wheel in elevation. Fig. 3 is an end view of the ratchet-wheel and gripping-levers illustrated in Figs. 1 and 2 and with the cover-plate removed, the view looking in the direction of the arrow in Fig. 1. Fig. 4 is a detail end view of a guide-finger carried by the central platen shaft or spindle. Fig. 5 is a detail perspective view of the right-hand platen-head. Fig. 6 is a detail fragmentary perspective view of the gripping-levers and line-spacing ratchet-wheel, the view showing the action of the levers upon the flange of the ratchet-wheel. Fig. 7 is a central longitudinal sectional view taken through the right-hand end of the platen and illustrating certain modifications in the structure. Fig. 8 is a detail perspective view of a further modification of the device for actuating the gripping-levers. Fig. 9 is a fragmentary longitudinal sectional view showing a modified form of lever for affording connection between the line-spacing ratchet-wheel and platen, the section being taken on the same line as Fig. 1.

In the various views similar numerals of reference will be used to designate similar parts.

The cylindrical platen is composed of a hollow core 1, covered with the usual rubber sheath 2, and preferably at the right-hand end of the platen is a head 3, securely attached to the platen by screws 4 passing through holes 5 in said head and taking into the platen-core. This platen-head has a hub 6, which is slotted on opposite sides at 3' and which extends into

the hollow core of the platen. The outer face of the platen-head is also provided with a similar hub 7, from which projects an outwardly-extending smaller perforated hub 8, the perforations extending through the head, as at 8^a, and for the passage of the platen shaft or spindle 9, seated in a suitable bearing in the end 9^a of the platen-frame of the carriage 9^b, which in this case may be of the Densmore type. The inwardly-extending hub 6 has tapped holes 10 therein for the reception of screws 11, which secure to the hub a stirrup or yoke 12, extending into the socket or hollow center of the core 1, and which yoke is perforated at its inner end or cross-bar 12^a to permit the free passage of the shaft 9. The hub 7 also has tapped holes 13 in the end thereof, Fig. 3, for the attachment of headed screws of a cover-plate 14, which bears against the line-space ratchet-wheel 15 and prevents it from moving endwise outwardly, without, however, interfering with its free rotation on the hub 7.

The stirrup or frame 12 has in one of its sides a slot 16 for the reception of a guide-finger 17, which moves therein. This finger 17 is rigidly secured to the shaft 9 and by its engagement with the slot prevents an independent rotation between the shaft and the platen and causes the two always to turn together. The shaft 9 carries at its outer end a platen finger-wheel 18 to effect rotation of the platen either when connected to or disconnected from the ratchet-wheel, and a coiled expansion-spring 19 under tension encircles the shaft between the sleeve or hub of the finger 17 and the cross-bar 12^a of the stirrup and tends to push the shaft endwise and outwardly. The inner bifurcated end of the shaft 9 carries a wedge or tapering actuating device 20, which at its apex or smaller end is pivoted to said shaft by a pin 21, on which it is free to swing laterally of the shaft.

The ratchet-wheel 15 is a ring provided with the usual teeth to be acted upon by any suitable line-spacing pawl, (not shown,) and co-operating with the said teeth is the usual spring-pressed check roller or detent 22 to prevent overthrow and an accidental turning of the platen and to hold it, together with the paper carried thereby, in the positions to which they are moved by the ordinary line-spacing pawl. The ratchet-wheel has an annular flange or web 23, which extends toward the axis of the platen and has a central circular opening to enable the wheel to be seated and revolved on the periphery of the hub 7.

Carried loosely in the slots 3' of the inner hub of the platen-head 3 are two levers 24, that extend longitudinally of the platen. Each lever has at its outer end integral clamping or gripping jaws 25, which project at substantially right angles to the length of the lever and extend on opposite sides or faces of the flange 23 of the ratchet-wheel. Normally these U-shaped jaws are caused to bite and

bind the flange 23 with great force and lock the parts together, so as to prevent an independent movement of the line-spacing ratchet-wheel and platen, as will hereinafter more clearly appear. The inner ends of the levers 24 are inclined, as at 26, to permit a wedging action thereon of the curved or tapering faces 27 of the spreader or actuating device 20.

It having been explained that the levers 24 are seated in the slots 3' of the platen-head and that the platen-head is secured to the platen, it will be understood that the platen and the levers are thus fixed to rotate together. The spring 19 causes the wedge or actuating device 20 to exert outward or lateral pressure on the inclined edges 26 of the levers 24, and thus causes each pair of the jaws 25 to bind or grip the flange 23 on its opposite sides or faces and prevents rotation of the ratchet-wheel 15 and jaws independently of each other. The finger 17 being seated in the slot of the stirrup 12 prevents an independent rotation of shaft 9, finger-wheel 18, and the platen, so that these parts are all effectually locked to rotate together. When it is desired to turn the platen independently of the ratchet-wheel, as for fractional line-spacing, the operator presses the finger-wheel 18 inwardly against the tension of the spring 19 and relieves the ends of the levers 24 from pressure of the wedge or device 20 and the jaws 25 release the flange 23 and permit a rotation of the platen to any desired extent independently of the line-spacing wheel, which at this time is maintained fixed by the pressure of the detent 22 thereon. Thus while the inward or endwise pressure is exerted on the finger-wheel 18 it may be rotated, carrying with it the shaft or spindle 9, the sliding finger 17, the stirrup 12, the platen-head 3, the gripping-levers 24, and the platen. When the fractional line-spacing has been effected, (and this may be very slight relatively to the distance from line to line as determined by the teeth of the ratchet-wheel 15,) endwise pressure on the finger-wheel is released, and the spring 19 causes the actuating device 20 instantly to exert its pressure on the levers 24 and causes the jaws to bite the flange 23, effectually bringing about an automatic locking of the parts, so that the finger-wheel, line-spacing wheel, and platen will all rotate together.

It will be observed that the levers 24 in the construction thus far described are not fixedly pivoted, but lie loosely in the slots or channels 3', and the wedge or device 20 being pivoted (to move laterally relatively to the shaft 9) it exerts no more pressure on one lever than on the other, but causes the levers to exert pressure in opposition to each other; that all of the pressure applied by the spring is exerted equally on both levers and is applied on opposite faces of the flange 23 and at opposite sides of the center of the line-

spacing ratchet-wheel; that none of the pressure applied laterally of the levers is exerted against the platen shaft or spindle 9 nor against any fixed pivots, so that the full force of the spring is transmitted equally to both levers; that movements of the finger-wheel endwise of the platen are effective to disconnect and connect the line-spacing wheel and the platen; that the gripping-jaws bind upon opposite sides of the flange 23 and endwise of the platen and so as to effect a powerful frictional engagement between the parts, thus avoiding any liability of the platen creeping during a violent line-spacing movement or being slightly rotated during the engagement or disengagement of the parts. It will likewise be observed that the space between the integral jaws 25 of each lever is just of sufficient width for the flange 23 to be contained therein and to afford free rotation of the jaws relatively thereto when the pressure of the wedge is removed from the faces of the levers 26, that the levers are at all times maintained in substantially horizontal positions by the associated parts, that the construction enables the employment of long levers, and that it requires but a very slight outward movement of the free ends of the levers to cause the jaws to efficiently bind against the flange to lock the parts together.

In Fig. 7 instead of using a plate-like pivotal wedge on the end of shaft 9 a small roller 28 with curved or tapering periphery is loosely supported on the shaft near its inner end and is prevented from displacement along the shaft by collars 29. The opening or bore in the roller 28 is somewhat larger than the diameter of the shaft and admits of a slight lateral play or movement of the roller relatively to the shaft, so that the action of the roller is very similar to that of the pivoted wedge 20 and causes the levers 24 to exert a pressure in opposition to each other. In the structure shown in this figure I substitute for the slot 16 and finger 17 a rigid arm 30, fixed on the shaft 9 and provided with a transverse opening in its outer end, through which passes a pin 31, projecting from the inner face of the platen-hub 6. The arm and shaft rotate together, and when the shaft is moved endwise it will carry the arm 30 with it; but the pin throughout this movement will maintain the shaft locked to the hub, so that when the shaft is rotated the hub and platen turn therewith.

In Fig. 8 two antifriction-rollers 32 are carried by a small frame 33, that has an elongated opening 33^a, through which the shaft 9 extends. The frame likewise has two perforated ears 34, which form bearings to enable the frame to move laterally of the shaft 9 on the guide-pin 35, rigidly secured to the shaft. The movement of this frame laterally on the shaft permits an equal distribution of the pressure upon the two levers 24 in the same

general manner as in the constructions hereinbefore described.

In Fig. 9 each of the bent levers 24^a, instead of being loosely disposed in a channel 3', as in the constructions previously described, is pivoted near the clamping end thereof at 24^b to the hub 6 and is provided with but one clamping jaw or portion 25^a, that bears against a face of the flange 23 of the line-spacing wheel. The construction otherwise may be essentially the same as represented in the other figures. In the construction shown at Fig. 9 each part 24^a constitutes a long arm of a bent lever that extends longitudinally of the platen, whereas the part 25^a of each lever constitutes a short arm thereof, that is adapted to bear directly with frictional contact against the line-spacing wheel, and this is likewise true of the corresponding parts of the constructions shown in the other figures of the drawings.

It will be observed that in the various constructions shown there is absolutely no independent rotation or lost motion between the hand-wheel and platen, that the gripping is instantly and automatically effected, that the right-hand finger-wheel of the platen is effective to both release the platen and to rotate it when released or when locked to the line-spacing ratchet-wheel, and that when the hand of the operator is removed from the hand-wheel the parts will be automatically actuated to lock the line-spacing ratchet-wheel and platen to rotate together, so that there is no necessity for the operator to effect a special movement of a part after each differential or fractional-line-space movement in order properly to connect the platen and line-space wheel. The occasional rotation of the platen for fractional line-spacing changes the relation between the platen and line-spacing wheel, so that the impact of the types is not always on certain given lines as determined by the teeth of the wheel, and the wear is consequently distributed over the entire surface of the platen.

By pivoting the wedge or permitting the side play of its equivalent devices the shaft 9 is free from lateral pressure and the devices act uniformly on both levers and each lever becomes the bearing for the pressure exerted on the other. In consequence of this pressure a simultaneous gripping action is effected on the flange 23 and a uniform pressure is maintained thereon, and the construction is such that a long leverage is provided for the longitudinally-disposed levers 24 (or 24^a) and an efficient engagement is maintained by a comparatively slight pressure exerted by the spring 19. The construction shown in Figs. 1, 2, and 6 might also be aptly described as levers, which extend longitudinally of the platen and each of which is provided with a transverse groove in which the flange 23 is seated or fitted, so that a lateral movement of the free end of each lever will cause the

walls of the groove therein to bind upon the flange.

The constructions are such that the platen can be nicely turned through minute arcs for fractional line-spacing, and while I prefer to employ smooth friction-faces on the jaws 25 (or 25^a) and on the flange 23, with which they coöperate, it should be understood that from certain aspects of my invention these faces may be roughened, serrated, or provided with teeth. In the particular constructions shown, however, this roughening has been found unnecessary, as an efficient binding action is effected without it.

Various changes in details of construction and arrangements of parts may be made without departing from the spirit of my invention. Thus, for instance, it is obvious that the cam's inclined or wedging surfaces for spreading or actuating the clamping-levers may be carried by said levers, by the platen-shaft or spindle 9, or by both, as shown.

It will be noted in my preferred construction that the loosely-arranged or unpivoted levers or gripping-jaws are mounted in a manner such that they not only grip the line-spacing wheel, but also fulcrum thereon and receive directly the full available force of the spring that causes them to act to connect the line-spacing wheel to the platen. If the said levers were fixedly pivoted—as, for example, in Fig. 9—a considerable portion of the force of the said spring would be exerted on the pivots and greatly diminish the pressure or gripping effect upon the line-spacing wheel. Moreover, if there were employed some intermediate fixedly-pivoted lever for actuating the line-spacing wheel-gripping levers said intermediate pivoted lever would likewise take from the force of the spring and materially lessen the gripping effect of the levers acting on the line-spacing wheel. In my preferred construction it will be observed that the full essential force of the spring is exerted directly on the gripping levers or jaws and that no portion of the force of said spring is lost or expended by first acting upon some intermediate lever or other device connected with the platen, and which if existing would necessarily take from the full power of said spring. Differently stated, it will be noted that no part of the spring-pressure is exerted directly or indirectly upon the platen itself, but is wholly transmitted to the levers which act upon the line-spacing wheel. This feature of construction makes my contrivance essentially different in principle from numerous other constructions heretofore devised and enables me to obtain a vastly-greater clamping, gripping, or frictional engagement between the platen and the line-spacing wheel than can be obtained where any portion of the spring-power is diverted, so as to be exerted upon some fixed portion of the platen or some device secured thereto. Hence in some of my broader claims,

wherein I refer to the expenditure of the full essential force of the spring directly on the gripping or binding lever, it will be understood that this expression is intended to distinguish between a construction wherein some portion of the force of the spring is diverted to and acts upon some part of the platen or its shaft and my preferred construction, wherein the entire available force of the spring is transmitted or passes directly to the lever and line-spacing wheel, which latter of course, it will be understood, are not a part of the platen proper, although they are connected thereto. Moreover, in stating that the full force of the spring is exerted directly on the said binding or gripping-lever I do not wish to be understood that the said spring must necessarily be in immediate contact with said lever and act directly thereagainst. Although the spring is shown as mounted on a shaft or spindle which is provided with an actuator for the lever, nevertheless it will be seen that the entire available tension or working force of said spring is adapted to expend itself directly upon said binding-lever and line-spacing wheel instead of being lost in part on some fixed pivot or other device intermediate the spring and the lever.

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

1. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a flange on said wheel, clamping-jaws that are adapted to bear on opposite sides or faces of said flange, and means for moving said jaws.

2. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a flange on said wheel, clamping-jaws that are adapted to bear on opposite sides or faces of said flange, a lever-arm to which said jaws are connected, and means for moving said lever-arm.

3. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a flange on said wheel, a lever that extends longitudinally of the platen, clamping-jaws that are adapted to bear on opposite sides or faces of said flange, and means for effecting a lateral movement of the free end of said lever.

4. In a type-writing machine, the combination of a platen, a line-spacing-ratchet-wheel having a flange projecting therefrom, a lever which is provided with a transverse groove in which said flange is seated, and means for moving said lever.

5. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having an inwardly-projecting flange, a lever that extends longitudinally of the platen and which is provided with a transverse groove in which said flange is seated, and means for moving said lever transversely of the platen to effect the engagement and disengagement thereof from the flange.

6. In a type-writing machine, the combina

tion of a platen, a line-spacing ratchet-wheel having a flange, a plurality of levers, clamping-jaws carried by each of said levers and adapted to engage the flange on opposite sides 5 or faces thereof, and an actuating device that coöperates with said levers to effect an engagement or disengagement between the clamping-jaws and said flange.

7. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having an inwardly-directed flange, a plurality of levers that extend longitudinally of the platen, clamping-jaws carried by each of said levers and adapted to engage the flange 10 on opposite sides or faces thereof, and a spring-pressed actuating device that coöperates with said levers to automatically effect an engagement between the clamping-jaws and said flange, and hand-actuated means for effecting a disengagement of the jaws from said flange. 15

8. In a type-writing machine, the combination of a platen, a platen-head secured thereto and which has a channel therein, a lever seated in said channel so that the lever is connected 25 to turn with the platen and may receive a movement independent thereof, a line-spacing wheel having an annular flange which is seated in a groove in said lever, and a finger-wheel operatively connected to afford a transverse 30 movement of the free end of said lever to effect an engagement or disengagement between the lever and said flange.

9. In a type-writing machine, the combination of a platen, a shaft, a line-spacing ratchet-wheel, a plurality of engaging devices that rotate with the platen and which are adapted to engage said line-spacing wheel and an actuating device that is supported by said shaft and is adapted to receive a movement independently and laterally thereof and to bear upon said engaging devices to afford an actuation thereof, whereby the pressure is equally exerted upon said engaging devices. 40

10. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a plurality of engaging levers that extend longitudinally of the platen and rotate with it and which are provided with means adapted to engage said line-spacing wheel, a longitudinally-movable shaft and an actuating device that is connected to said shaft and is adapted to move independently and laterally thereof and to bear upon said levers. 50

11. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a plurality of engaging devices that rotate with the platen and which are adapted to engage said line-spacing wheel, a shaft and a wedge that is pivoted to said shaft and is adapted to bear or press equally upon said engaging devices. 55

12. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a plurality of engaging devices that are adapted to engage the line-spacing ratchet-wheel or 65

to be disengaged therefrom, a longitudinally-movable shaft that is connected to rotate with the platen, an actuating device carried by said shaft and movable independently thereof in directions transverse thereto and adapted to 70 bear or press on the engaging devices, and a finger-wheel connected to said shaft.

13. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a plurality of levers that extend longitudinally of the platen and each of which is provided with means adapted to engage the line-spacing ratchet-wheel or be disengaged therefrom, a longitudinally-movable shaft that is connected to rotate with the platen, an actuating device carried by said shaft and movable independently thereof in directions transverse thereto and adapted to bear or press on said levers, a spring exerting its tension on the shaft and effective to normally maintain 85 the engaging devices locked to the line-spacing wheel, and a finger-wheel connected to said shaft and effective to turn the platen and to move the shaft longitudinally against the tension of its spring in order to release the 90 engaging devices from the line-spacing wheel.

14. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a freely-disposed and unpivoted lever, clamping-jaws carried by said lever and coöperating 95 with the line-spacing wheel, and means for actuating said lever.

15. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having an annular flange, a U-shaped clamp 100 that coöperates with said flange, an integral lever-arm connected to said U-shaped clamp, and means for affording a lateral movement of said lever.

16. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having an inwardly-directed annular flange, oppositely-disposed U-shaped clamps which coöperate with said flange, an integral lever-arm connected to each of said clamps, and 110 means for affording a lateral movement of the free ends of said lever-arms to effect an engagement and disengagement of the clamps on said flange.

17. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having an inwardly-directed annular flange, oppositely-disposed U-shaped clamps which coöperate with said flange, an integral lever-arm connected to each of said clamps, an actuating device interposed between the free ends of said lever-arms, a shaft to which said actuating device is connected, and a finger-wheel connected to said shaft. 115

18. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having an inwardly-directed annular flange, oppositely-disposed U-shaped clamps which coöperate with said flange, an integral lever-arm connected to each of said clamps, a platen 125 130

shaft or spindle that is connected to rotate with the platen and to move longitudinally independently thereof, a finger-wheel connected to said shaft, a spring that effects a longitudinal movement of the shaft, and an actuating device connected to the shaft and adapted to bear on said lever-arms and to effect an engagement of the clamps on the flange.

19. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having an inwardly-directed annular flange, a lever contained within the platen and extending longitudinally thereof, an integral U-shaped clamp that extends at substantially right angles to the length of the lever and co-operates with said annular flange, and hand-controlled means for acting on said lever.

20. In a type-writing machine, the combination of a platen, a platen-head secured thereto and having a channel therein, a line-spacing ratchet-wheel having an inwardly-directed annular flange, a lever loosely seated in the channel in the platen-head and extending longitudinally of the platen, an integral U-shaped clamp that extends at substantially right angles to the length of the lever and co-operates with said annular flange, a platen shaft or spindle that rotates with the platen and moves longitudinally thereof, and means controlled by the longitudinal movement of the shaft for effecting a lateral movement of said lever.

21. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having an annular flange that projects inwardly therefrom, oppositely-disposed U-shaped clamps that co-operate with said flange, an integral lever-arm connected to each clamp, said lever-arms being contained within the platen and extending longitudinally thereof, an actuating device intermediate of said lever-arms, a shaft that rotates with the platen and moves longitudinally thereof and to which said actuating device is connected, a spring for effecting a longitudinal movement of the shaft in one direction, and a finger-wheel connected to said shaft and adapted to move it in the opposite direction against the tension of said spring.

22. In a type-writing machine, the combination of a platen, a platen-head secured to the platen and having channels therein, a line-spacing ratchet-wheel having an annular flange that projects inwardly therefrom, oppositely-disposed U-shaped clamps that co-operate with said flange, an integral lever-arm connected to each clamp, said lever-arms being loosely seated in channels in the platen-head and extending longitudinally of the platen, an actuating device intermediate of said lever-arms, a shaft that rotates with the platen and moves longitudinally thereof and to which said actuating device is connected to move laterally and independently of said shaft, a spring for effecting a longitudinal movement of the shaft in one direction, and a finger-wheel connected to

said shaft and adapted to move it in the opposite direction against the tension of said spring to release the clamps from engagement with the flange.

23. In a type-writing machine, the combination of a platen, a line-space ratchet-wheel provided with a flange, levers with gripping-jaws operating on the flange of the ratchet-wheel, a spring-pressed shaft, a wedge carried loosely by said shaft and co-operating with the levers to cause the jaws to bite and hold the flange, and a finger-wheel adapted to thrust the shaft against the action of its spring and rotate the platen when the jaws release the flange of the ratchet-wheel.

24. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel provided with a flange, levers each having a pair of gripping-jaws adapted normally to grip or bind the flange on opposite faces thereof and means for operating the levers to release the jaws so that they may travel around the flange and permit the platen to be rotated independently of the ratchet-wheel.

25. In a type-writing machine, the combination of a platen, a line-space ratchet-wheel, a flange on the ratchet-wheel, levers provided with gripping-jaws to engage the flange of the ratchet-wheel, a shaft arranged to move longitudinally of the platen and carrying a wedge adapted to act on the inner ends of the levers and force the jaws to bite and bind the flange of the ratchet-wheel, and means for connecting the platen and shaft so that the two will at all times rotate in unison.

26. In a type-writing machine, the combination of the platen, a line-space ratchet-wheel, a flange on said ratchet-wheel and which extends toward the axis of the platen, a platen-head with hubs, one of which forms a bearing for said flange, levers carrying gripping-jaws, an actuating device for operating the gripping-levers, a shaft carrying the wedge, a spring, a finger-wheel, and means for connecting the shaft with the platen so that they may rotate in unison.

27. In a type-writing machine, the combination of a platen, a line-space ratchet-wheel, a flange on the ratchet-wheel, levers provided with gripping-jaws adapted to engage the flange, a platen-head provided with channels for the reception of the levers, a spring-pressed shaft and a loosely-disposed actuating device carried by the shaft, and acting on the inner ends of the gripping-levers to spread them so as to force each lever to sustain the pressure which is exerted on the other.

28. In a type-writing machine, the combination of a platen, a line-space ratchet-wheel, a flange on said ratchet-wheel, gripping-levers provided with jaws for engaging said flange, a platen-head provided with a hub around which the flange of the ratchet-wheel is adapted to rotate, said platen-head having channels for the reception of the gripping-levers,

a stirrup carried by said platen-head and having a slot in its side and a perforation in its end, a shaft which passes through said perforation and provided with a finger to travel in said slot, an actuating device on the shaft for spreading the gripping-levers, a spring carried by said shaft between the end of the stirrup and finger and a finger-wheel on the end of said shaft, whereby the shaft may be moved longitudinally independently of the platen to release it from the line-spacing ratchet-wheel and may be rotated to turn the platen.

29. In a type-writing machine, the combination of a platen, a platen-head provided with hubs and channels, a ratchet-wheel having a flange or web supporting said ratchet-wheel on the hub of the platen-head, levers carried in the channels of said platen-head and provided with gripping-jaws adapted normally to engage the flange of the ratchet-wheel and lock the flange to the platen-head, and means for releasing the jaws from the flange.

30. In a type-writing machine, the combination of a platen, a platen-head, a line-spacing ratchet-wheel provided with a flange which is adapted to be locked to the platen-head, levers with locking-jaws, a shaft carrying an actuating device adapted to operate said levers to lock and unlock the jaws, and means for connecting said shaft and the platen-head and to at all times prevent a relative turning movement between said shaft and platen-head whereby the shaft and platen will at all times be turned together.

31. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having a flange, an end plate, levers having locking-jaws at their ends to engage the flange and inclined faces at their inner ends, means for automatically moving said levers to effect a gripping of the flange by the jaws, and means for relieving the pressure of the lever-moving means and effecting the release of the flange.

32. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having a flange, a platen-head carrying levers that extend longitudinally of the platen and are provided with lateral jaws for engaging said flange, and an actuating device that moves longitudinally of the platen and coöperates with said levers for automatically spreading the levers and causing the jaws to simultaneously and uniformly grip the flange.

33. In a type-writing machine, the combination of a platen and ratchet-wheel adapted to be locked to turn in unison, said ratchet-wheel having a flange, loosely-disposed levers with locking-jaws, an actuating device coöperating with said levers, a shaft carrying said actuating device, and a spring for moving said shaft to cause said jaws to grip said flange.

34. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel,

a shaft provided with a finger-wheel, a guide-finger, a coiled spring, an actuating device carried by the shaft, a platen-head secured to the platen and provided with hubs and having channels and an opening for the passage of the shaft; a stirrup carried by the platen-head and adapted to guide the shaft and its finger, and means controlled by said actuating device for automatically effecting a locking between the ratchet-wheel and the platen-head.

35. In a type-writing machine, the combination of a line-space ratchet-wheel provided with a flange, a platen carrying within its hollow core means for normally locking it to the ratchet-wheel and comprising a platen-head secured to the platen, locking-levers loosely seated in sockets or channels in the platen-head and having jaws which are adapted to engage the flange of the line-spacing ratchet-wheel, an actuating device operating on the inner ends of the levers, a shaft carrying the actuating device and provided with a spring to hold the actuating device in position between the ends of the levers, and means for releasing the actuating device and unlocking the jaws.

36. In a type-writing machine, the combination of a platen, a line-space ratchet-wheel having a flange, levers provided at their outer ends with gripping-jaws that coöperate with said flange and having cams at their inner ends, a platen-head having channels for the reception of said levers, a shaft carrying an actuating device operating on the cams on said levers, a stirrup carried by the platen-head and adapted to guide the shaft, and means for effecting a longitudinal movement of said shaft.

37. In a type-writing machine, the combination of a platen carrying a platen-head provided with holes and channels, a line-space ratchet-ring with an internal flange, levers that extend longitudinally of the platen and each having at one end jaws which engage the flange, a shaft passing through the end plate and provided with means for preventing its rotation therein, a finger-wheel, a spring on said shaft, and an actuating device carried loosely on the shaft and adapted to be automatically moved and forced to bear against the free ends of the locking-levers and cause the jaws to bind the flange of the wheel.

38. In a type-writing machine, the combination of a platen, a platen-head, a ratchet-ring having a flange, levers each having gripping-jaws at one end and a cam at the other, and a shaft carrying an actuating device that is adapted to move laterally with relation to said shaft and to engage the cams on said levers and cause the jaws to bite and hold the flange.

39. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a lever that is arranged longitudinally within the platen and which is brought into direct frictional engagement with the line-spacing

ratchet-wheel, and means for actuating said lever.

40. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, 5 a plurality of levers that are arranged longitudinally within the platen and which are brought into direct frictional engagement with the line-spacing ratchet-wheel and exert a pressure thereon longitudinally of the platen, and 10 hand-controlled means for actuating said levers.

41. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a plurality of bent levers having arms of different lengths and having their longer arms 15 extended longitudinally of the platen and their shorter arms arranged to frictionally engage with the line-spacing ratchet-wheel and exert a pressure thereon longitudinally of the 20 platen, and means for actuating said levers.

42. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, levers that extend longitudinally of the platen and which are brought into direct frictional 25 engagement with the line-spacing ratchet-wheel, a finger-wheel, and a wedging device controlled by said finger-wheel for acting on said levers.

43. In a type-writing machine, the combination of a platen, a line-spacing wheel, means 30 for binding said wheel and causing it to turn with said platen, a lever operatively connected to said wheel-binding means and extending longitudinally within the platen, a spring-pressed shaft, and means operated by said 35 shaft for actuating said lever and normally causing the said binding means to act on the said line-spacing wheel so as to cause the latter and the platen to turn together; said 40 shaft being adapted to be moved longitudinally to release the said lever and said binding means and enable the platen to be turned independently of said line-spacing wheel.

44. In a type-writing machine, the combination of a platen, a line-spacing wheel, a platen-head permanently secured to said platen, binding means carried by said head and adapted to engage said line-spacing wheel and cause it normally to turn with said platen, 50 levers arranged longitudinally within said platen and carried by said head and operatively connected to said binding means for actuating the same, a platen-shaft having a bearing in said head, means controlled by said 55 platen-shaft for acting on said levers to cause said binding means to engage said line-spacing wheel, and a spring acting on said shaft and lever-actuating means for normally causing engagement between said binding means and 60 said line-spacing wheel so as to enable the latter and the platen to turn together; said shaft being adapted to be moved longitudinally against the tension of its spring to release said binding means and enable the platen to be turned independently of the line-spacing wheel. 65

45. In a type-writing machine, the combination of a platen, a line-spacing wheel, a bent lever having one arm arranged longitudinally of the platen and the other transversely thereof, and means for acting on the longitudinally- 70 arranged arm and causing the transversely-arranged arm to press in a direction endwise of the platen and against the line-spacing wheel so as to bind the same by a frictional engagement. 75

46. In a type-writing machine, the combination of a platen, a line-spacing wheel, a pair of bent levers having long arms extending lengthwise of the platen and shorter arms extending transversely thereof, and spring-pressed means 80 acting on the longer arms of said levers and causing the shorter arms normally to press against the line-spacing wheel in the general direction of the length of the platen and to bind the same by a frictional engagement. 85

47. In a type-writing machine, the combination of a platen, a line-spacing wheel, a pair of bent levers having long arms arranged lengthwise of the platen and shorter arms arranged transversely thereof, a spring-pressed sliding 90 shaft, and means controlled thereby for acting on said levers and causing their shorter arms normally to press against the line-spacing wheel; the construction and arrangement being such that when the shaft is moved in 95 opposition to its spring the pressure on the line-spacing wheel is relieved and the platen left free to be rotated independently of the line-spacing wheel.

48. In a type-writing machine, the combination of a platen, a line-spacing wheel, an unpivoted lever arranged both to fulcrum on and grip said line-spacing wheel, and a spring for causing the lever thus to act; the combination and arrangement being such that the full essential 100 force of the spring is exerted directly on the said lever. 105

49. In a type-writing machine, the combination of a platen, a line-spacing wheel, a pair of unpivoted levers arranged to fulcrum on and also to grip said wheel, and a spring acting 110 equally on each of said levers and adapted to expend its entire essential force directly thereupon.

50. In a type-writing machine, the combination of a platen, a line-spacing wheel, a pair of oppositely-disposed clamping-jaws arranged to fulcrum on and also to grip said wheel, and spring mechanism for acting directly on said 115 jaws and imparting thereto the full essential power of said spring. 120

Signed in the borough of Manhattan, city of New York, in the county of New York and State of New York, this 22d day of December, A. D. 1902.

OSCAR WOODWARD.

Witnesses:

K. V. DONOVAN,
E. M. WELLS.