

G. A. SMITH.
 LINE SPACING MECHANISM FOR TYPE WRITERS.
 APPLICATION FILED APR. 22, 1908.

935,936.

Patented Oct. 5, 1909.
 2 SHEETS—SHEET 1.

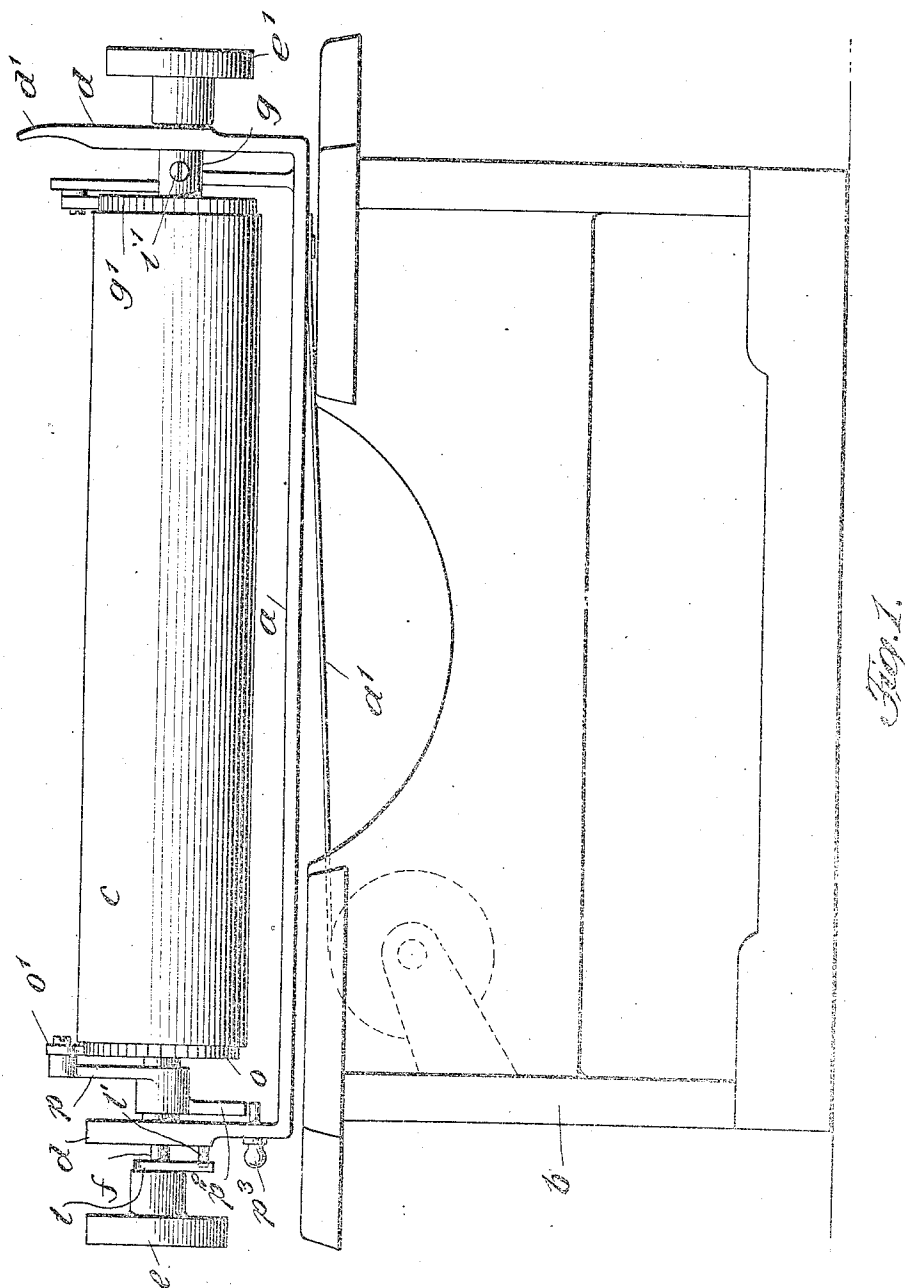


Fig. 1.

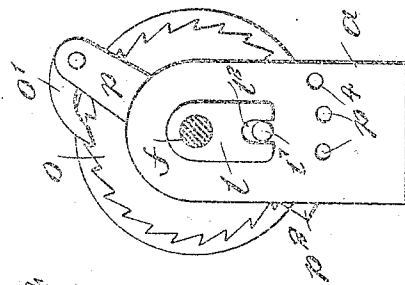
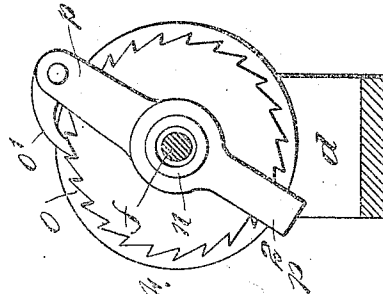
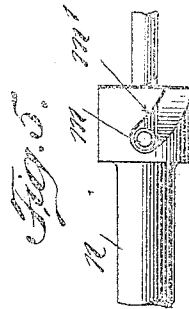
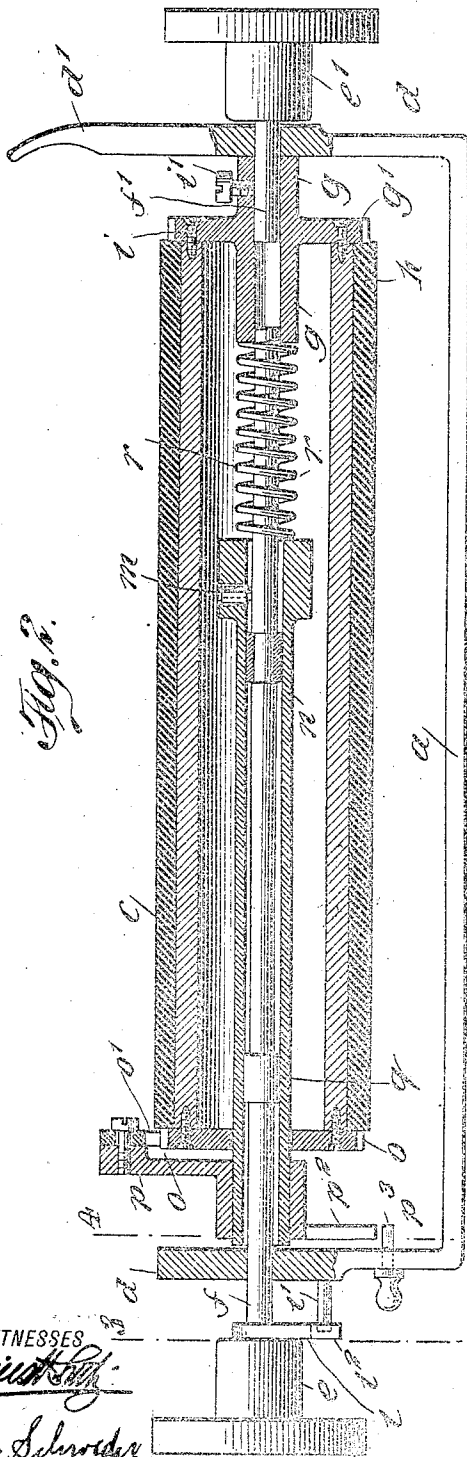
WITNESSES
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G. A. SMITH.
 LINE SPACING MECHANISM FOR TYPE WRITERS.
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WITNESSES
Julius B. Schneider
 L. B. Schneider

Fig. 3.
 INVENTOR
George A. Smith
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UNITED STATES PATENT OFFICE.

GEORGE A. SMITH, OF NEW YORK, N. Y., ASSIGNOR OF SIXTEEN ONE-HUNDRED-AND-FOURTHS TO JAMES W. HENNESSEY, OF RICHMOND, NEW YORK, FORTY-SIX ONE-HUNDRED-AND-FOURTHS TO ARTHUR LETTS, OF LOS ANGELES, CALIFORNIA, AND TWENTY-ONE ONE-HUNDRED-AND-FOURTHS TO FREDERICK H. WARD, OF BROOKLYN, NEW YORK.

LINE-SPACING MECHANISM FOR TYPE-WRITERS.

935,936.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed April 22, 1908. Serial No. 428,486.

To all whom it may concern:

Be it known that I, GEORGE A. SMITH, a citizen of the United States of America, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Line-Spacing Mechanism for Type-Writers, of which the following is a specification.

My invention relates to line-spacers for typewriters, and particularly to those spacers used in connection with a horizontal cylindrical platen mounted on a reciprocating carriage adapted to be shifted and to be intermittently revolved to effect the spacing between the lines.

The object of my device is to supplant the customary shifting lever, which hangs down over the keyboard, with a more simple and convenient arrangement whereby the manual power exerted to shift the platen and its carriage will simultaneously give the platen a partial rotation to advance the paper and make a space for a new line. And to this end my invention consists in the peculiar features and combination of parts more fully described hereinafter and pointed out in the claims.

In the accompanying drawings, Figure 1 represents a front elevation of an ordinary typewriter equipped with my improved line spacing mechanism, Fig. 2 represents a longitudinal section through the platen, Figs. 3 and 4 are end views of the ratchet mechanism through line 3, 3 and 4, 4, and Fig. 5, a detail view of a pin and slot device employed for converting the rectilinear motion which shifts the carriage, into the rotary motion which turns the platen and spaces the lines.

The carriage *a* is mounted to travel on the top of a common form of typewriter frame, such as *b*. A revoluble platen *c* is suspended to rotate in the upright arms *d* of the carriage, the latter being provided with an upward extension forming a handle *d'*.

e, *e'* represent handles or manipulating knobs at the opposite sides of the carriage. The stems or shafts *f*, *f'* of these knobs form the journals and axis of the platen. The stem *f'* of the right-hand knob passes into a sleeve *g* made integral with a ratchet disk *g'* which is fastened over the end of the platen

cylinder *h*, by screws *i*, said stem *f'* being fixed in the sleeve *g* by a set screw *i'*, so that it will revolve the platen independently of the opposite stem. The stem *f* of the left-hand manipulating knob consists of a long cylindrical rod which extends longitudinally through the platen cylinder into the end of the sleeve *g* which forms a support for it. This left-hand knob *e* and its stem do not revolve, the stem being allowed to move longitudinally or endwise only. The means for preventing such revolution consists of an arm *l* fixed to the stem and engaged by a horizontal pin *l'* which enters an open slot *l''*. In shifting the carriage from left to right, as in the act of spacing to begin a new line, the endwise pressure brought to bear upon the knob *e* is resisted by the feeding strap *a'*, but moves the knob and its stem longitudinally in relation to the platen and at the same time revolves the platen axially through the medium of a pin *m* projecting from the side of the stem into a curved slot *m'* in a hollow shaft *n* surrounding the stem. This imparts a rotary motion to the hollow shaft and turns the platen by means of a ratchet *o* and a pawl *o'* pivoted on the end of an upwardly projecting arm *p* fixed to turn with the hollow shaft by a sleeve *p'*. The throw of the pawl may be limited to make double or single line spacing by a downwardly projecting arm *p''* and removable pin *p'''* adapted to be set in any one of a series of holes *p''''*. When the lower arm *p''* strikes the pin *p'''*, all the power of the hand comes upon the carriage to overcome the power of the feeding mechanism. Anti-friction bearings *q* surround the sliding stem and reduce the frictional surface. A retracting spring *r* encircles the stem, with one end of the spring attached to sleeve *g*, and the other end to the hollow shaft *n*, which rotates the platen.

It will be seen that the platen can be rotated independently of the left-hand knob *e* by working the right-hand knob *e'*, the two stems being separated.

The spacing between the lines can be regulated to three different widths corresponding to the three holes *p''* in the supporting arms for the platen. Whenever the operator presses against the left-hand knob with

the hand to shift the carriage, such pressure will move the knob and its stem inward, forcing the pin against the wall of the curved slot in the hollow shaft, thereby rotating the latter on its axis, turning the platen and compressing the spring. Upon removing the hand from the knob the retracting spring *r* forces out the stem, and the pin *m*, acting upon the opposite wall of the curved slot, reverses the rotation of the hollow shaft and draws the pawl *o'* back for a new purchase.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a line spacing mechanism for typewriters and in combination with the usual carriage, a revoluble hollow platen, a longitudinal rock-shaft extending from the inside to the outside of the platen, means connected with the outside portion of said shaft for rotating the platen intermittently, a non-rotary longitudinally movable shaft extending into the platen and connected to turn the longitudinal rock-shaft, and hence the platen from the outside thereof, and a retracting spring located within the platen.

2. In a line spacing mechanism for typewriters and in combination with a hollow platen, a non-rotatable longitudinally mov-

able stem or shaft extending into the platen, a retracting spring for said shaft, a hollow rock-shaft containing the non-rotatable shaft, a cam and slot connection between the two shafts, whereby one when moved endwise rotates the other and hence the platen, pawl and ratchet mechanism connecting the rock-shaft with the platen, and means for regulating the throw of the pawl.

3. In a line spacing device for typewriters, the combination with a traveling carriage, carrying a revoluble hollow platen, of a rotatable hollow shaft extending into said platen, a longitudinal non-rotatable shaft extending through the hollow shaft, a non-rotatable manipulating knob or handle on the longitudinal shaft and being adapted to move sidewise therewith, means connected therewith for rotating the platen when the knob is moved sidewise toward the platen, said means including a pawl and ratchet, and means for adjusting the throw of the pawl to regulate the spacing effected by the revolution of the platen.

Signed at New York city, this 6th day of April, 1908.

GEORGE A. SMITH.

Witnesses:

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C. B. SCHROEDER.