

(No Model.)

3 Sheets—Sheet 1.

T. F. LEE.
TYPE WRITING MACHINE.

No. 468,934.

Patented Feb. 16, 1892.

Fig. 1.

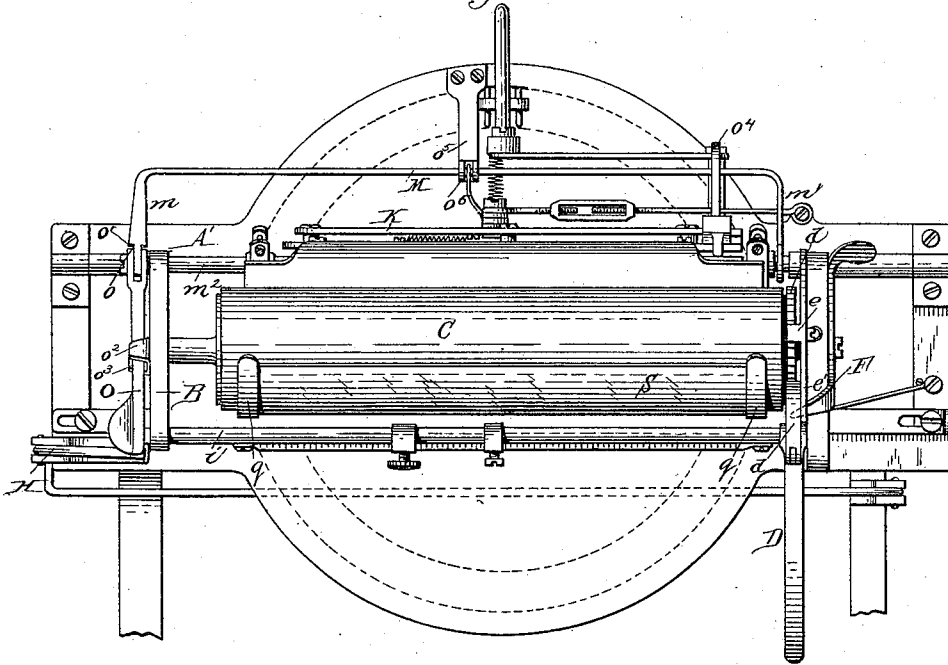


Fig. 2.

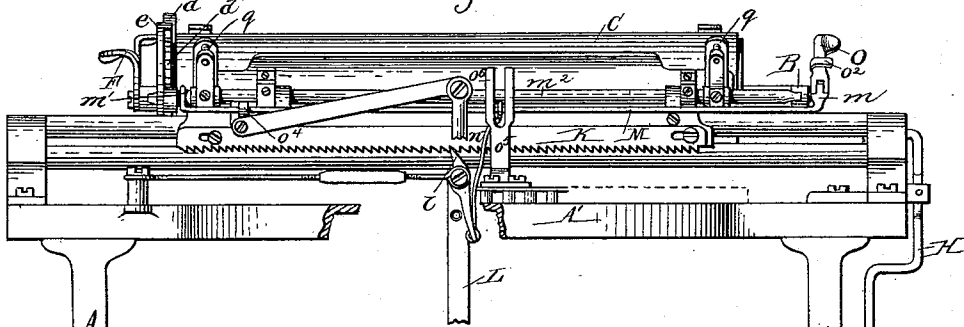
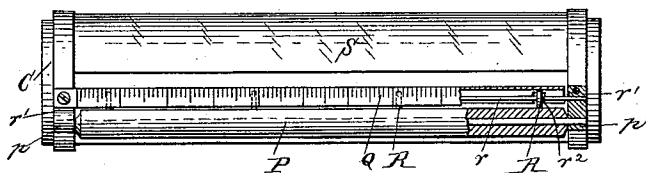


Fig. 3.



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Fig. 4.

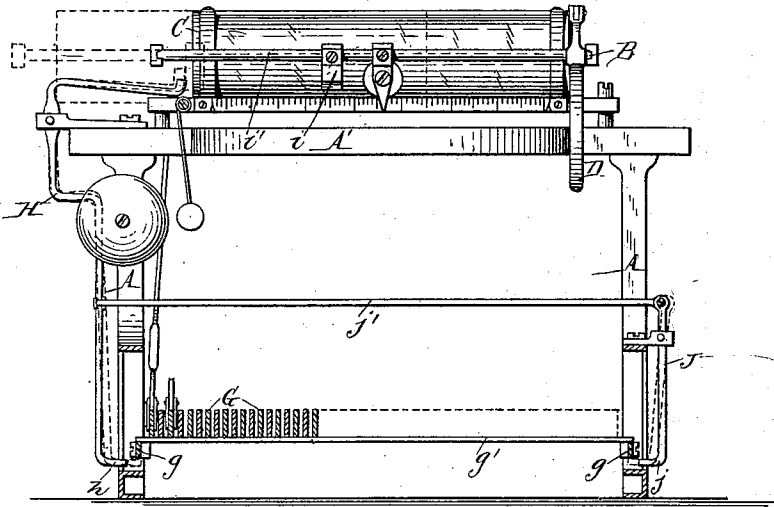
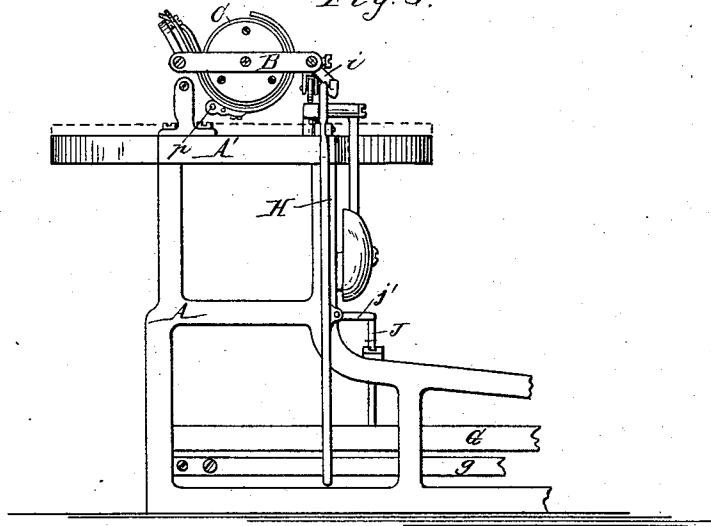


Fig. 5.



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3 Sheets—Sheet 3.

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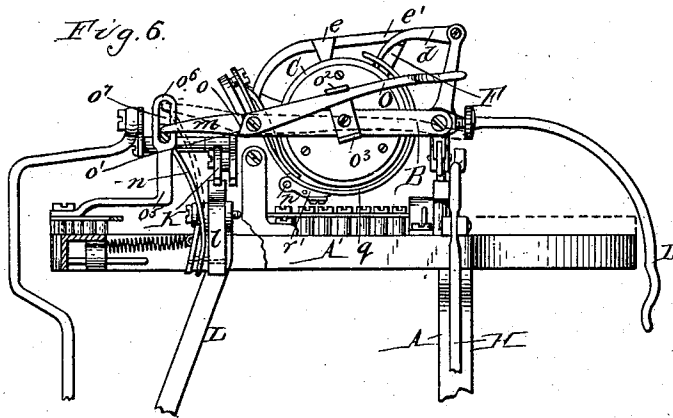


Fig. 7.

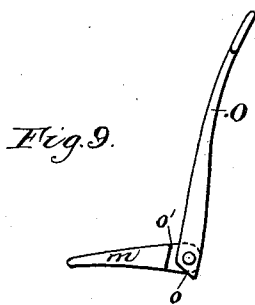
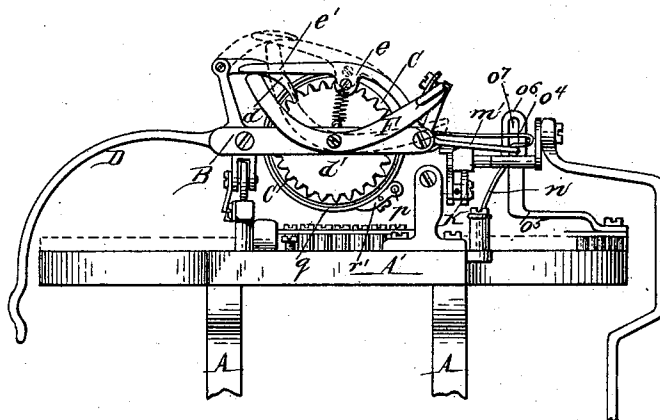
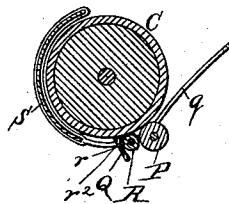


Fig. 8.



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UNITED STATES PATENT OFFICE.

THOMAS F. LEE, OF REXVILLE, NEW YORK.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 468,934, dated February 16, 1892.

Application filed January 9, 1891. Serial No. 377,239. (No model.)

To all whom it may concern:

Be it known that I, THOMAS F. LEE, a citizen of the United States, residing at Rexville, in the county of Steuben and State of New York, have invented new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates more especially to type-writing machines having a cylindrical platen; and it has for its objects, first, to provide the platen with simple means for disengaging its actuating and detent devices, so that the platen may be turned backward for making interlineations or corrections; second, to provide means whereby the depression of the keys is automatically prevented when the carriage reaches the limit of its movement, so as to avoid writing several letters one upon the other at the end of a line; third, to simplify the mechanism for throwing the escape pawl or dog of the carriage out of gear with the rack-bar when it is desired to return the carriage for making corrections; fourth, to provide an efficient guide for the paper, which permits narrow sheets or envelopes, as well as wide paper, to be passed through the machine, and, fifth, to provide a supplementary feed-roller, whereby the sheet of paper can be fed closer to its bottom edge.

In the accompanying drawings, consisting of three sheets, Figure 1 is a fragmentary top plan view of a type-writer containing my improvements. Fig. 2 is a fragmentary rear view thereof. Fig. 3 is a detached bottom plan view of the platen with a portion of the scale and feed or pressure roller broken away. Fig. 4 is a sectional front elevation of the machine on a reduced scale. Fig. 5 is a fragmentary side elevation of the machine. Fig. 6 is a fragmentary side elevation of the machine, showing the releasing mechanism of the escape-pawl. Fig. 7 is a similar view of the opposite side of the machine, showing the means for disengaging the actuating-pawl and detent of the cylindrical platen. Fig. 8 is a cross-section of the platen and the feed or pressure rollers. Fig. 9 is a detached view of the jointed releasing-lever of the escape-pawl.

Like letters of reference refer to like parts in the several figures.

In the drawings my improvements are represented as applied to a machine of the "Caligraph" type; but they are also applicable to other type-writing machines.

A A represent the side frames of the machine; A', the top plate; B, the carriage, and C the roller-platen, journaled upon the carriage in the usual manner.

D is the line-space lever, and *d* the actuating-pawl carried by the lever and engaging with the ratchet-wheel *d'*, secured to the adjacent end of the platen.

e is the detent which holds the platen against backward movement, and which, in the construction represented in the drawings, is pivoted at its rear end to the carriage-frame. The detent is formed with an arm or forward extension *e'*, which is arranged adjacent to the actuating-pawl *d*.

F represents a releasing device arranged upon the carriage, and whereby the pawl and detent of the platen are simultaneously disengaged from the ratchet-wheel of the platen. This releasing device consists of a lever pivoted to the end of the carriage-frame and having its front end bent inwardly and under the actuating-pawl *d* and the forward extension of the detent *e*. The other arm of the lever terminates in a thumb-piece for operating the lever. Upon depressing the releasing-lever its front arm is caused to lift the actuating-pawl and detent simultaneously out of engagement with the ratchet-wheel of the platen, as represented by dotted lines in Fig. 7, thereby allowing the platen to be turned backward for interlining or making corrections. Upon releasing the lever the actuating-pawl and detent again drop into engagement with the ratchet-wheel. By this arrangement both pawls are conveniently released by one hand and by a single movement of the releasing-lever.

G are the key-levers, *g* the space-levers carrying the space-bars, and *g'* the universal bar connecting the space-levers and extending across the under sides of the key-levers, and which takes part in the movements of said levers.

H is a movable stop or locking device arranged on one side of the machine, whereby the key-levers are automatically locked

against downward movement when the carriage reaches the end or nearly the end of its movement. This stop or locking device consists of a catch or lever pivoted to a bracket secured to one side of the machine and having its lower arm provided with an inwardly-projecting lip *h*, adapted to engage under the adjacent space-lever *g*. The upper arm of the locking-lever is arranged in the path of a tripping toe or projection *i*, arranged on the carriage-frame, preferably upon the front rail *i'* of the carriage, as clearly shown in Fig. 4. The end of the upper arm of the locking-lever *H* is so arranged with reference to the toe *i* that when the carriage reaches the end of its movement the lever will be tripped by the toe, thereby swinging the lower arm of the lever inwardly, causing its lip to engage under the adjacent space-lever and arrest the downward movement thereof. The universal bar being connected with the space-levers and bearing against the under sides of all the key-levers in turn prevents depression of any of the levers, thereby obviating the printing of several letters upon the last space of a line, which detracts from the neatness of the work. Upon returning the carriage to the starting-point the tripping-toe releases the locking-lever and allows the same to become disengaged from the space-lever, the lever being preferably bent in such manner that its lower arm tends to swing outwardly by gravity when the lever is released, and thereby clear the space-lever. It is obvious, however, that the lever may be retracted by a spring, if desired.

J, Fig. 4, represents a locking-lever pivoted to the opposite side of the machine and provided at its lower end with a lip *j*, which engages under the adjacent space-lever. The upper arm of this lever is connected with the lower arm of the main locking-lever *H* by a connecting-rod *j'*, so that the lever *J* is operated simultaneously with the lever *H*, thereby locking both ends of the universal bar and effectually preventing the depression of any of the keys. The universal bar thus performs the additional function of a locking-bar for the key-levers when the platen reaches the end of a line.

K represents the escapement-rack secured to the rear side of the carriage, *l* is the escape-pawl engaging with said rack, and *L* is the rock-arm, to the upper part of which the escape-pawl is pivoted in such manner that the nose of the pawl may be swung downward to disengage the pawl from the rack-bar and permit the carriage to be moved backward, if desired, without rotating the platen.

M represents a U-shaped releasing-frame arranged on the rear side of the carriage, whereby the escape-dog *l* is thrown out of gear with the escapement-rack. The lateral arms *m m'* of this frame are provided at their front ends with eyes which encircle the horizontal rear rail *m²* of the carriage, and whereby the U-shaped frame is pivoted to the car-

riage. The lower arm of the escape-pawl is connected with the U-shaped frame *M* by a connecting-rod *n*, so that upon raising said frame the pawl is swung on its pivot and its nose disengaged from the escapement-rack.

O is a lifting arm or lever connected with the pivoted releasing-frame, and whereby the same is operated. This lever is preferably pivoted near its inner end to the rear rail of the carriage in line with the adjacent lateral arm *m* of the U-shaped frame, and the lever is provided at its inner end with an inclined shoulder *o*, which is designed to bear against a corresponding shoulder *o'*, arranged at the front end of the arm *m*. Upon depressing the lever its shoulder engages against the shoulder of the U-shaped frame, causing the lever to act as a rigid arm or bar and lifting the frame. The joint in the lever permits the same to be raised with the carriage for examining the writing. The carriage is provided at its end adjacent to the lifting-lever with lips *o² o³*, arranged on opposite sides of the lever, and whereby the lever is raised and lowered with the carriage. The lower lip or projection *o³* is arranged a sufficient distance below the pivot of the lever to permit the same to be depressed for raising the pawl-releasing frame *M*. Upon depressing the lever the escape-pawl is thrown out of gear with the escapement-rack, while upon releasing the lever the frame descends by its own weight and moves the pawl into engagement with the rack-bar. To insure the depression of the releasing-frame, a spring *o⁴* is provided, which is secured with one end to the carriage-frame and bears with its opposite end upon the releasing-frame.

o⁵ represents an upright bracket, whereby the rod *n*, connecting the pawl and releasing-frame, is held in place. This bracket is secured to the rear portion of the top plate *A'* and provided at its upper end with arms *o⁶*, each of which is provided with a vertical slot *o⁷*, which receives the longitudinal bar of the releasing-frame. The upper portion of the connecting-rod *n* is arranged between the arms of the bracket, and is thereby held against longitudinal movement with the releasing-frame.

P represents the main pressure or feed roller, whereby the paper is fed and held against the platen. This roller is arranged parallel with the platen and is journaled in bearings *p p*, secured to the curved arms *q q*, which latter are secured to the carriage in any suitable manner.

Q represents the graduated scale arranged underneath the platen. This scale is secured with its ends to the arms *q q*.

R represents supplementary feed-rollers, which receive the sheet of paper from the main feed-roller and carry it farther toward the printing-point. These rollers are arranged in rear of the main feed-roller and are supported on a transverse shaft *r*, journaled in bearings *r' r'*, secured to the arms *q q*. The

supplementary feed-rollers extend through slots r^2 , formed in the scale, and bear against the under side of the platen. These supplementary rollers retain a grip on the lower end of the sheet of paper and feed the same forwardly after it has passed the main feed-roller, thereby enabling the writing to be carried down farther on the sheet than has been possible heretofore in machines employing a single feed-roller.

S represents the curved guide which partially surrounds the platen, and whereby the paper is guided forwardly, upwardly, and rearwardly over the platen. This guide consists of a concave plate extending from end to end or nearly from end to end of the platen and composed of transparent material, such as glass, to render the writing visible through the guide. The guide is supported at its ends by the curved guides q q . This forms a very desirable guide, as the same permits narrow sheets of paper and small envelopes, as well as wide sheets, to be passed through the machine without the liability of improperly guiding the paper or envelopes. As the guide is transparent from end to end, its increased width does not interfere with reading the written matter under the guide.

I claim as my invention—

1. The combination, with the carriage and the rotary platen, of an actuating-pawl for turning the platen forwardly, a detent which holds the platen against backward movement and having an arm arranged adjacent to the actuating-pawl, and a releasing-lever pivoted to the carriage and engaging against the adjacent portions of the actuating and detent pawls, substantially as set forth.

2. The combination, with the main frame and the carriage, of the key-levers, a stop-bar extending across the under side of the key-levers, and a vertical locking-lever pivoted to the main frame, adapted to be tripped by the carriage and provided with a lip or projection, whereby the stop-bar is held against downward movement when the lever is tripped, substantially as set forth.

3. The combination, with the main frame and the carriage, of the key-levers, a space-

lever, a bar extending across the row of levers, a locking-lever pivoted to the frame and adapted to engage with its lower arm under the adjacent space-lever, and a tripping toe or projection arranged on the carriage and operating against the locking-lever, substantially as set forth.

4. The combination, with the main frame and the carriage, of the key-levers, space-levers, a bar connecting the space-levers and extending across the row of key-levers, a main locking-lever pivoted to one side of the frame for arresting the downward movement of the adjacent space-lever, and a locking-lever arranged on the opposite side of the machine for locking the other space-lever and connected with the main locking-lever, substantially as set forth.

5. The combination, with the escapement-rack of the carriage, the pivoted escape-pawl, and its carrying-arm, of a releasing-frame pivoted to the carriage and connected with said escape-pawl, and an actuating-lever capable of swinging upwardly and having a shoulder adapted to engage against a shoulder on the releasing-frame upon depressing the lever, substantially as set forth.

6. The combination, with a carriage having a lip or projection, of the pivoted escape-pawl and its carrying-arm, a releasing-frame pivoted to the carriage and connected with the escape-pawl, and a lever for operating said releasing-frame, swinging upon a common pivot with the carriage and engaging against the lip or projection of the carriage for raising the same, substantially as set forth.

7. The combination, with the platen and the scale-bar arranged underneath the platen and provided with slots, of a main feed-roller bearing against the platen and supplementary rollers arranged in the slots of the scale-bar and bearing against the platen in rear of the main feed-roller, substantially as set forth.

Witness my hand this 6th day of January, 1891.

THOMAS F. LEE.

Witnesses:

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THEO. L. POPP.