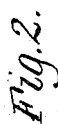
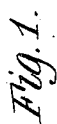


1,038,906.

3 SHEETS—SHEET 1.



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1,038,906.

E. G. LATTA.
TYPE WRITING MACHINE.
APPLICATION FILED DEC. 11, 1909.

Patented Sept. 17, 1912.

3 SHEETS—SHEET 2.

Fig. 3.

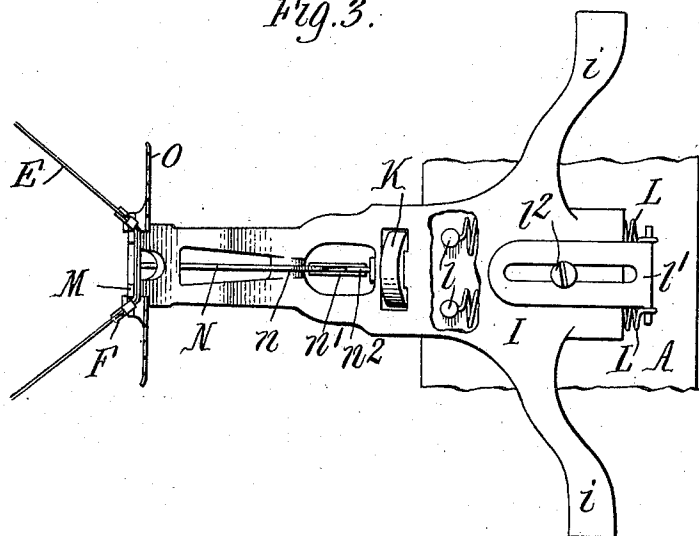


Fig. 4.

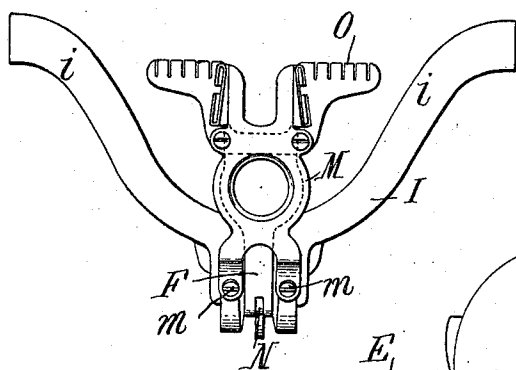
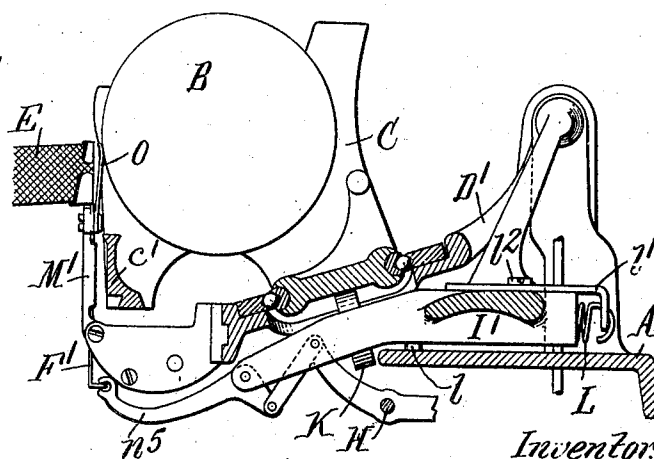


Fig. 5.



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3 SHEETS—SHEET 3.

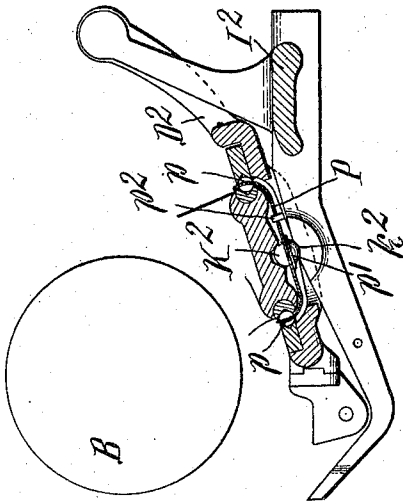


Fig. 6.

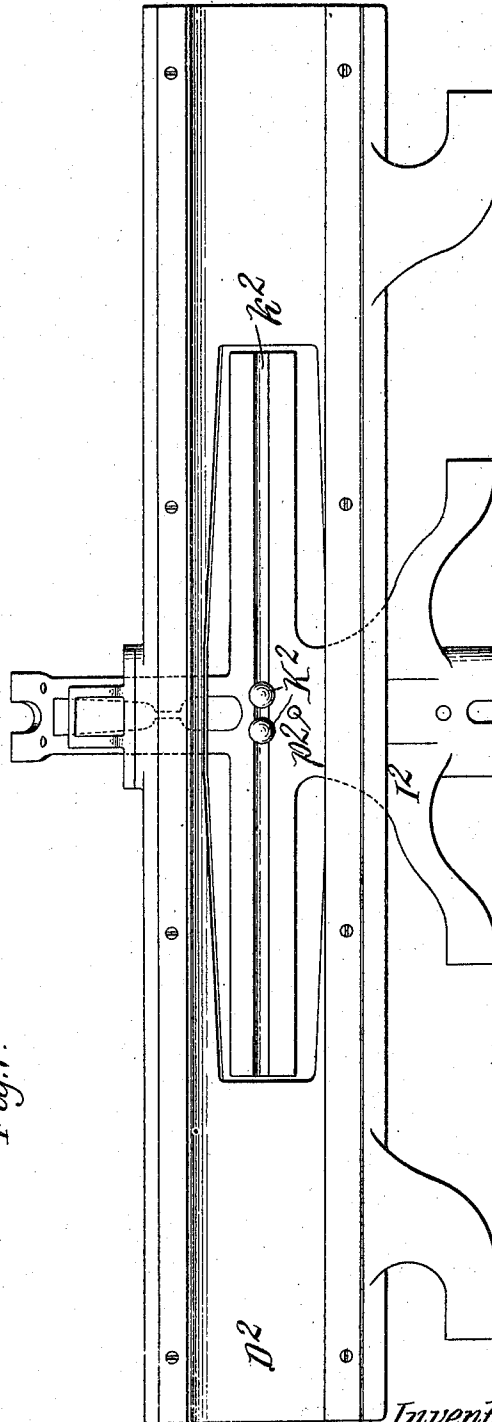


Fig. 7.

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UNITED STATES PATENT OFFICE.

EMMIT G. LATTA, OF SYRACUSE, NEW YORK, ASSIGNOR OF ONE-HALF TO HARVEY A. MOYER, OF SYRACUSE, NEW YORK.

TYPE-WRITING MACHINE.

1,038,906.

Specification of Letters Patent.

Patented Sept. 17, 1912.

Application filed December 11, 1909. Serial No. 532,530.

To all whom it may concern:

Be it known that I, EMMIT G. LATTA, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Type-Writing Machines, of which the following is a specification.

This invention relates to improvements in the means employed in visible writing type-writing machines, more particularly of the sort known as the Moyer machine, for movably supporting the carriage so that it can be shifted for placing the platen in printing relation to one or another of the different sets of type on the type-bars.

One of the objects of the invention is to produce a construction in which the shift frame, upon which the carriage is mounted and is guided in its horizontal travel, can be detached from the main frame of the machine without disturbing the ribbon or its vibrating mechanism and without disconnecting the lifting spring for the carriage and shift frame; also to reduce the friction and wear in the carriage guide by supporting at least a portion of the weight of the carriage independently of the shift frame; also to support the ribbon vibrator and its guide so that it shifts with the shift frame and carriage without being mounted on the shift frame; also to provide a central line gage that shifts with the shift frame and carriage; and also to improve the shifting support for the carriages of typewriting machines in other respects hereinafter described and set forth in the claims.

In the accompanying drawings, consisting of three sheets: Figure 1 is a fragmentary longitudinal sectional elevation of a type-writing machine embodying the invention. Fig. 2 is a rear elevation thereof. Fig. 3 is a fragmentary plan view thereof. Fig. 4 is a front elevation of the carriage-supporting frame. Fig. 5 is a fragmentary longitudinal sectional elevation of a slightly modified construction. Fig. 6 is a similar view of another modification. Fig. 7 is a plan view thereof omitting the carriage.

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

A represents the top plate of the main frame of the machine; B the platen; C the platen carriage and *c* the spring driving drum therefor; D the shift frame on which

the carriage is mounted to travel horizontally transversely of the machine, and which is pivoted so that it can swing vertically for shifting the platen from one to another of its different printing positions; E the ribbon which passes from one to the other of two spools located at the opposite sides of the front portion of the top plate; F the ribbon vibrator or guide for vibrating the ribbon to and from printing position between the type and the platen; G the carriage escapement; and H the universal bar which is actuated at the type strokes for operating the carriage escapement and the ribbon vibrator. In the machine illustrated, these parts are constructed and arranged as in the Moyer typewriter. Preferably the carriage has a scale bar *c'* at its lower front portion provided on its front face with a graduated scale, and slides in antifriction or ball bearing guides *c''* on the shift frame. The shift frame is hinged to posts *d* rising from the opposite sides of the rear portion of the top plate by adjustable pivots *d'*, and is shifted from one to another of its different positions by a cam lever or device *d''* (operated manually by means not shown) and engaging a roller *d'''* journaled on the front central portion of the shift frame. The universal bar H consists of a rock shaft journaled in bearings depending from the top plate A.

The weight of the carriage and shift frame is borne, at least in part, by an auxiliary spring-sustained frame or support I, which is preferably located under the shift frame and pivoted to the main frame coincidentally with the pivotal axis of the shift frame and carries a bearing device on which the carriage rests, whereby the carriage guide on the shift frame is relieved of more or less of the weight of the carriage.

In the construction shown in Figs. 1-4, the auxiliary frame has upwardly and rearwardly extending arms *i* hinged by adjustable pivots *i'* to posts *i''* rising from the top plate A between the pivot posts for the shift frame, and a roller K suitably journaled on a central forward extension of the frame projects through an opening in the shift frame and bears against the flat underside of the carriage between its guide tracks. One of the arms of the auxiliary frame is shaped, as shown, to pass to the rear of the escapement and clear the spring

drum *c*, the other arm being similarly shaped for the sake of symmetry. It is not absolutely essential to pivot the auxiliary frame coincidentally with the pivotal axis of the shift frame, as stated, but this is preferable, as thereby there will be no transverse movement of the bearing roller on the carriage and consequently no sliding friction between these parts in the up and down movements of the roller with the shift frame. The bearing roller is caused to exert an upward or lifting pressure on the carriage preferably by a pair of tension coil springs *L* located in a cavity in the rear portion of the auxiliary frame or support and connected at opposite ends to studs or parts *l* on the top plate *A* and to a plate or part *l'* of the auxiliary frame. The plate *l'* to which the springs are attached is preferably slotted and adjustably secured to the auxiliary frame by a screw *l''* for regulating the lifting action of the springs.

The ribbon guide or vibrator *F* reciprocates in an upright guide *M* and is actuated by a vibrator lever *N* connected to the universal bar *H*. These parts may be of the construction heretofore used in the Moyer machine, or of other suitable construction, but the ribbon vibrator and its guide *M* and the vibrator lever *N* are in the preferred construction, shown in Figs. 1-4, mounted on the auxiliary frame or support *I* instead of on the shift frame, as heretofore. As shown, the guide *M* has a forked lower end secured by screws *m* to the forked front end of the auxiliary frame and the lower end of the vibrator passes down between these forked parts and is pivoted to the front end of the vibrator lever *N*, the vibrator and its guide having openings through which the scale bar *c'* can be seen. The vibrator lever *N* is pivoted at *n* in a slot in the auxiliary frame and is connected, as usual, by a link *n'* to an arm *n''* on the universal bar *H*, which has another arm *n'''* connected by a link *n''''* to the carriage escapement. The link *n''''* for actuating the escapement passes between the springs *L* and through the slot in the spring plate *l'* and a registering slot in the auxiliary frame. By thus mounting the ribbon vibrator and its guide and actuating lever on the auxiliary frame, the shift frame and carriage can be dismantled from the machine without disturbing any part of the ribbon mechanism. This is a great improvement over prior constructions in which the vibrator is mounted on the shift frame and its actuating means are located under the shift frame, as in such an arrangement the ribbon must be detached from the vibrator and the link *n'* disconnected before the shift frame can be removed.

Tension coil springs, connected at opposite ends to the auxiliary and main frames, are used to avoid sliding friction between

them and the parts on which they act. In constructions in which the springs act directly on the shift frame, such springs are objectionable for the reason that they also must be disconnected at one end or the other in order to dismount the shift frame, but by the employment of the auxiliary frame or support this objection is overcome and the shift frame with the carriage can be detached without disconnecting the springs. While a pair of springs arranged as described is desirable, one or more springs of the same or a different kind could be used.

By the described construction, the shift frame can be removed and replaced without in any way disturbing the ribbon mechanism or the carriage lifting springs, and it is much easier to assemble the ribbon mechanism and connect the parts to the universal bar with the small auxiliary frame than if they were connected to the larger shift frame, as the shift frame is not in the way at such time. Furthermore, the ribbon driving or feeding mechanism (not shown), as well as the auxiliary frame with the vibrating mechanism, are mounted on the top plate, so that the entire ribbon mechanism can be assembled on the top plate and adjusted before the top plate is connected to the main frame of the machine, and before the shift frame is mounted, all of which materially assists in assembling the machine.

The springs can be adjusted so that they will bear the entire weight of the carriage, leaving the weight of the shift frame to return the shift frame and carriage to their normal lower position when the shift key is released after shifting the carriage to its upper position; or the springs can be adjusted to bear less than the weight of the carriage in order to get a quicker return to the normal position; or they can be tensioned to cause them, acting through the roller and the carriage, to assist in lifting the shift frame also, in order to lessen the exertion of shifting the carriage rather than to obtain speed. The spring-sustained auxiliary frame or support acts to relieve the ball bearing carriage-guide from considerable wear and from shock and consequent wear when the carriage returns from shifted to normal position. The auxiliary frame or support practically supports the weight of the carriage, leaving the guide bearings to guide the carriage to and fro in its proper course with less wear and longer life than if the auxiliary frame or support was not used.

O represents a short scale and line gage which is secured to the vibrator guide *M* and has a central opening for the passage of the type-bars and ribbon to the platen. As the guide *M* is mounted on the auxiliary frame, the line gage moves with the platen when it is shifted and always retains the

same position directly under the line being printed. The upper edge of the gage affords a line by which the paper can be properly adjusted, and the center of its opening indicates the point where the next impression will be made. The gage presses against the paper on the platen, but it is made of spring metal and can yield to permit a number of sheets to pass it, and as it shifts with the platen it has no tendency to displace the paper during the shifting movements of the carriage.

In the modified construction shown in Fig. 5, the guide M' for the vibrator F' is supported by the shift frame D' instead of by the auxiliary frame, but the vibrator lever n^5 is pivoted on the auxiliary frame I' as before explained. In this construction the lower end of the vibrator is bent to engage in a notch in the front end of the vibrator lever, or it may be otherwise connected thereto so as to enable the vibrator to be readily disconnected from the lever when detaching the shift frame.

Figs. 6 and 7 show a construction in which ball bearings are employed between the auxiliary frame and the carriage in place of the roller before described. The shift frame D² has a central opening about one-half as long as the shift frame and carriage, and the auxiliary frame I² has lateral arms forming a bar nearly as long as the opening in the shift frame. This bar and the carriage are preferably provided with grooves forming a race k^2 for a pair of balls K² on which the carriage bears, but the grooves can be omitted and preferably are if the auxiliary frame is not pivoted coincidently with the shift frame. A sheet metal ball retainer P is shown having openings for the balls K² and also for the balls p of the carriage guide. The ball retainer, which is about half as long as the shift frame, is suspended on the guide balls p and has lips p' to prevent the displacement of bearing balls K² when the shift frame is detached, and in case that the auxiliary frame is accidentally depressed at any time. A pin p^2 on the auxiliary frame, entering a slot in the ball retainer, limits the travel of the retainer so as to prevent the balls K² from running over the ends of the auxiliary frame. This construction is somewhat heavier and more expensive than that first described but is otherwise more desirable. Still other forms of antifriction bearings for the carriage could be used on the auxiliary frame.

The mounting of the ribbon vibrating mechanism on a support which is independent of the shift frame but shifts therewith is desirable whether or not this support also serves as a support for the carriage, and the direct auxiliary support for the carriage is desirable whether or not it carries the ribbon vibrating mechanism, and the invention is

therefore not confined to the use of both of these features in combination. It will be apparent that the auxiliary support could be actuated by a weight instead of by a spring, but the spring is preferred.

I claim as my invention:

1. In a typewriting machine, the combination of a platen carriage, a shift frame for the carriage, and an auxiliary support which exerts a lifting action directly on the carriage, substantially as set forth.

2. In a typewriting machine, the combination of a platen carriage, a shift frame on which the carriage is guided in its horizontal travel, and an auxiliary support which exerts a lifting action on the carriage independently of the shift frame, substantially as set forth.

3. In a typewriting machine, the combination of a platen carriage, a shift frame for the carriage, and an auxiliary spring-actuated support which exerts a lifting action on the carriage independently of the shift frame, substantially as set forth.

4. In a typewriting machine, the combination of a platen carriage, a shift frame for the carriage, and an auxiliary spring-actuated support provided with an antifriction bearing on which the carriage bears, substantially as set forth.

5. In a typewriting machine, the combination of a platen carriage, a track acting to guide the carriage in its horizontal travel and which is movable for shifting the carriage, and an independent auxiliary support which relieves the carriage track of at least a portion of the weight of the carriage, substantially as set forth.

6. In a typewriting machine, the combination of a platen carriage, an antifriction track acting to guide the carriage in its horizontal travel, and an independent spring-supported antifriction bearing for the carriage, substantially as set forth.

7. In a typewriting machine, the combination of a platen carriage, a shift frame for the carriage, means for shifting the shift frame and the carriage, and a spring-actuated auxiliary support which acts directly on the carriage to assist the shifting movement of the shift frame and the carriage, substantially as set forth.

8. In a typewriting machine, the combination of a platen carriage, a shift frame on which the carriage is mounted and guided in its horizontal travel, and an auxiliary support which moves with but is independent of the shift frame and exerts a lifting action directly on the carriage, substantially as set forth.

9. In a typewriting machine, the combination of a platen carriage, a pivoted shift frame on which the carriage is mounted and guided in its horizontal travel, and a spring-actuated auxiliary pivoted support arranged

at the side of the shift frame opposite to that on which the platen is mounted and having a bearing for the carriage, substantially as set forth.

5 10. In a typewriting machine, the combination of a platen carriage, a pivoted shift frame on which the carriage is mounted and guided in its horizontal travel, and a spring-actuated auxiliary pivoted support
10 arranged under the shift frame and having a bearing for the carriage extending through an opening in the shift frame, substantially as set forth.

11. In a typewriting machine, the combination of a platen carriage, a pivoted shift frame for the carriage, and an auxiliary support which is pivoted substantially on the pivotal axis of the shift frame and exerts a lifting action on the carriage independently
20 of the shift frame, substantially as set forth.

12. In a typewriting machine, the combination of a platen carriage, a pivoted shift frame for the carriage having separated pivotal supports, and an auxiliary support
25 which is pivoted between the pivotal supports for the shift frame and exerts a lifting action on the carriage independently of the shift frame, substantially as set forth.

13. In a typewriting machine, the combination of a platen carriage, a shift frame having a track for guiding the carriage in its horizontal travel, an auxiliary support independent of the shift frame, and an anti-friction bearing between the carriage and the
30 auxiliary support for supporting the carriage, substantially as set forth.

14. In a typewriting machine, the combination of a platen carriage, a shift frame for the carriage having a limited movement,
40 means for moving the shift frame, a second frame having an antifrictional bearing on the carriage independently of the shift frame, and an adjustable spring acting to force the antifriction bearing against the
45 carriage, substantially as set forth.

15. In a typewriting machine, the combination of a platen, a pair of frames pivoted substantially on the same axial line,

means operable at will for moving one of said frames to shift the carriage, and a spring actuating the other frame to support at least a portion of the weight of the carriage, substantially as set forth.

16. In a typewriting machine, the combination of a platen carriage, a shift frame
55 for the carriage, an independent spring-actuated supporting frame for the carriage, and means for regulating the action of the spring-actuated frame, the shift frame and the carriage being detachable from the machine without disturbing the spring-actuated frame, substantially as set forth.

17. In a typewriting machine, the combination of a platen carriage, a shift frame for the carriage, an independent frame which
65 supports at least a portion of the weight of the carriage, and an adjustable helical actuating spring connected to the independent frame, substantially as set forth.

18. In a typewriting machine, the combination of a platen carriage, a shift frame for the carriage, a separate frame which supports at least a portion of the weight of the carriage, a helical actuating spring connected to the independent frame, and means on
75 the spring frame for adjusting the tension of the spring, substantially as set forth.

19. In a typewriting machine, the combination of a platen carriage, a shift frame for the carriage, an auxiliary support for the carriage which is independent of but shifts with the shift frame, and a line gage mounted on the auxiliary support, substantially as set forth.

20. In a typewriting machine, the combination of a platen carriage, a shift frame for the carriage, a spring-actuated auxiliary support for the carriage independent of the shift frame, and a line gage mounted on the auxiliary support, substantially as set forth.

Witness my hand, this 6th day of December, 1909.

EMMIT G. LATTA.

Witnesses:

FRANK E. REID,
CHESTER W. REID.