

E. G. LATTA.
TYPE WRITING MACHINE.
APPLICATION FILED FEB. 1, 1911.

1,038,907.

Patented Sept. 17, 1912.

2 SHEETS—SHEET 1.

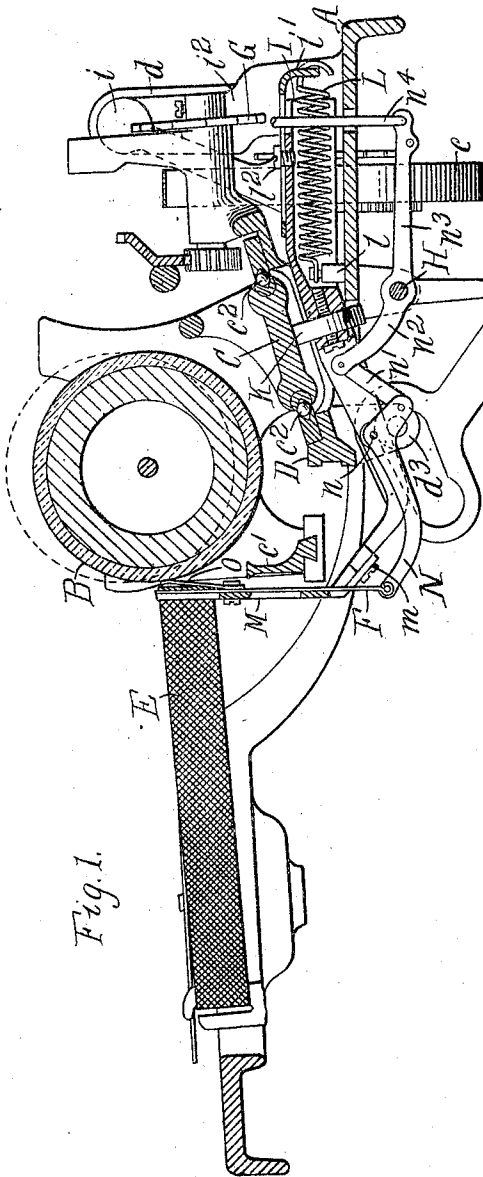


Fig. 1.

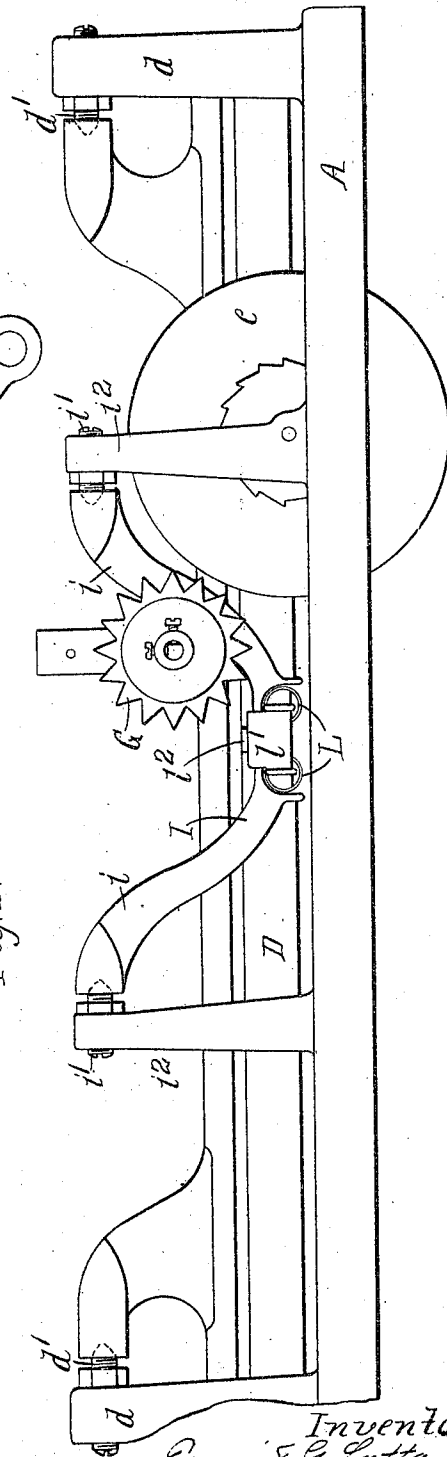


Fig. 2.

Witnesses:
C. H. Band.
G. E. Prochnow.

Inventor:
E. G. Latta,
By Wilhelm, Parker & Hand,
Attorneys.

1,038,907.

E. G. LATTA.
TYPE WRITING MACHINE.
APPLICATION FILED FEB. 1, 1911.

Patented Sept. 17, 1912.

2 SHEETS—SHEET 2.

Fig. 3.

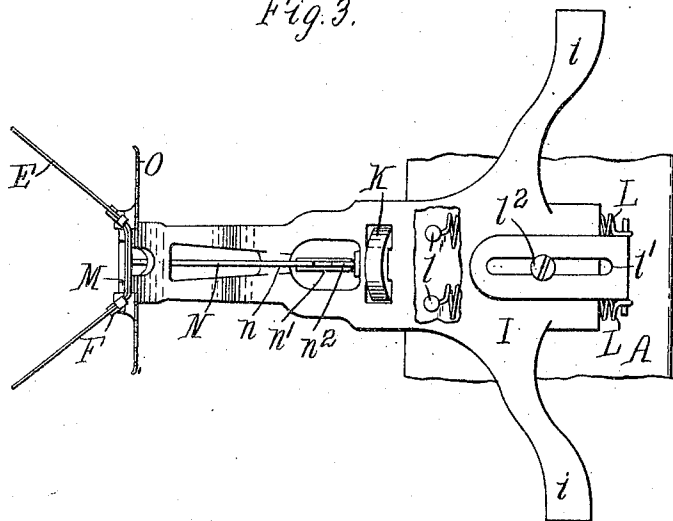


Fig. 4.

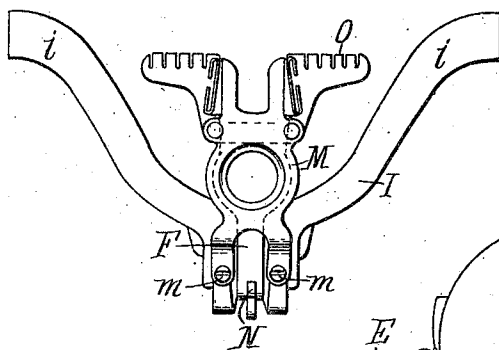
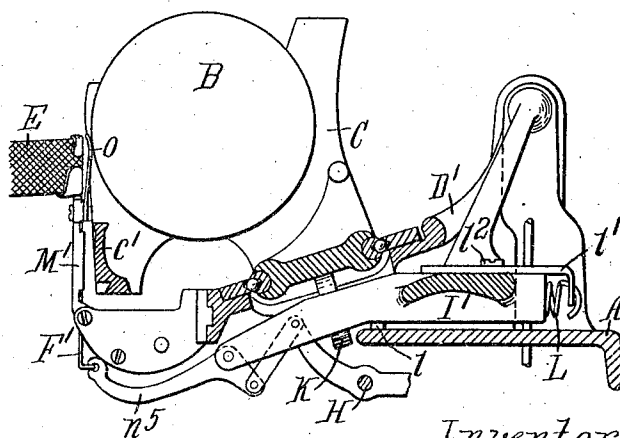


Fig. 5.



Witnesses:
C. H. Bund.
F. E. Prochnow.

Inventor:
Emmit G. Latta,
By Wilhelm. Parkhurst Hard.
Attorneys:

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.

BEST AVAILABLE COPY
1,038,907.

Specification of Letters Patent.

Patented Sept. 17, 1912.

Original application filed December 11, 1909, Serial No. 532,530. Divided and this application filed February 1, 1911. Serial No. 606,002.

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 more particularly to improvements in visible writing type-writing machines in which the carriage is movably supported 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.

This application is a division of my pending application Serial No. 532,530, filed December 11, 1909, and relates to the means disclosed in said application for supporting and operating the ribbon guide or vibrator and cooperating parts.

One of the objects of the invention is to so mount and arrange the ribbon guide or vibrator and its operating mechanism that the platen carriage and the shift frame, on which it is mounted and by which it is guided in its horizontal travel, can be detached and removed from the machine without disturbing the ribbon or its vibrating mechanism and without disconnecting the lifting spring for the shift frame and carriage; also to support the ribbon guide or vibrator so that it shifts with the shift frame and carriage and maintains the same normal relation to the platen without being mounted on the shift frame; and also to improve the ribbon vibrating mechanism and cooperating parts of typewriting machines in the other respects hereinafter described and set forth in the claims.

In the accompanying drawings, consisting of two 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 auxiliary carriage-supporting frame. Fig. 5 is a fragmentary longitudinal sectional elevation of a slightly modified construction.

Like reference characters 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 coincidently 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 coincidently 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. 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 springs are employed which act directly on the shift frame, such springs are objectionable for the reason that they 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, the invention is not confined to this arrangement and any other suitable spring arrangement for the auxiliary frame can be used.

The ribbon guide or vibrator *F* is supported on the auxiliary frame *I* and moves with this frame and the shift frame *D* when the platen is shifted. The ribbon guide or vibrator *F* shown 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" typewriter, 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 vibrator shifts with the carriage and maintains the same relation to the platen in both printing positions thereof, while the shift frame and carriage can be dismounted 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.

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.

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 75 is pivoted on the auxiliary frame I' as before explained. The vibrator F' is thus supported by the auxiliary frame but shifts with the shift frame and carriage, 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.

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, an auxiliary support which exerts a lifting action directly on the carriage, a ribbon vibrator which is mounted on said auxiliary support, and means for actuating said vibrator, substantially as set forth.

2. In a typewriting machine, the combination of a platen carriage, a shift frame for the carriage, an auxiliary spring-actuated support which exerts a lifting action on the carriage independently of the shift frame, a ribbon vibrator which is mounted on said auxiliary support, and means for actuating said vibrator, substantially as set forth.

3. In a typewriting machine, the combination of a platen carriage, a track on which the carriage is guided in its horizontal travel and which is movable for shifting the carriage, an independent auxiliary support which relieves the carriage track of at least a portion of the weight of the carriage, a ribbon vibrator which is mounted on said auxiliary support, and means for actuating said vibrator, substantially as set forth.

4. 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, a spring-actuated auxiliary support which acts directly on the carriage to assist the shifting movement of the shift frame and the carriage, a ribbon vibrator which is mounted on said auxiliary support, and means for actuating said vibrator, substantially as set forth.

5. 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, an auxiliary support which has a movement limited by the carriage and exerts a lifting action directly on the carriage, a ribbon vibrator which is mounted on said auxiliary support, and means for actuating said vibrator, substantially as set forth.

6. 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, 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, a ribbon vibrator which is mounted on said auxiliary support, and means for actuating said vibrator, substantially as set forth.

7. 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, a spring-actuated auxiliary pivoted support arranged under the shift frame and having a bearing for the carriage extending through an opening in the shift frame, a ribbon vibrator which is mounted on said auxiliary support, and means for actuating said vibrator, substantially as set forth.

8. In a typewriting machine, the combination of a platen carriage, a pivoted shift frame for the carriage, an auxiliary support which is pivoted substantially on the pivotal axis of the shift frame and exerts a lifting action on the carriage independently of the shift frame, a ribbon vibrator which is mounted on said auxiliary support, and means for actuating said vibrator, substantially as set forth.

9. In a typewriting machine, the combination of a platen, a pair of frames pivoted substantially on the same axial line, means for moving one of said frames to shift the carriage, a spring actuating the other frame to support at least a portion of the weight of the carriage, a ribbon vibrator which is mounted on said second frame, and means for operating said vibrator, substantially as set forth.

10. In a typewriting machine, the combination of a platen carriage, a shift frame for the carriage, an auxiliary supporting frame for the carriage, a ribbon vibrator mounted on said auxiliary frame, and means for operating said vibrator, said shift frame and the carriage being detachable from the machine without disturbing said auxiliary frame and said ribbon vibrator, substantially as set forth.

11. In a typewriting machine, the combination of a platen carriage, a shift frame for the carriage, a ribbon vibrator, a support on which said vibrator is mounted and which is disconnected from but shifts the same as said shift frame, and means for

operating said vibrator, substantially as set forth.

12. In a typewriting machine, the combination of a platen carriage, a shift frame for the carriage, a ribbon, means for vibrating the ribbon, and a support for the ribbon vibrating means which shifts in the same direction and the same distance as the shift frame, substantially as set forth.

13. In a typewriting machine, the combination of a platen carriage, a shift frame for the carriage, a ribbon, means for vibrating the ribbon, and a spring-actuated support for the ribbon vibrating means that causes the vibrating means to shift with the carriage, substantially as set forth.

14. In a typewriting machine, the combination of a platen carriage, a shift frame for the carriage, a ribbon, vibrating means for the ribbon, a spring-actuated support for the ribbon vibrating means that causes the vibrating means to shift with the carriage, a universal bar, and connections between the universal bar and vibrating means that vibrate the ribbon in different positions of the shift frame, substantially as set forth.

15. In a typewriting machine, the combination of a platen carriage, a shift frame which is movable for shifting the carriage, a ribbon, a ribbon vibrating lever, and a spring-actuated movable frame that shifts with the shift frame and forms a pivotal support for the vibrating lever, substantially as set forth.

16. In a typewriting machine, the combination of a platen carriage, a shift frame which is movable for shifting the carriage, a ribbon, a ribbon vibrator, a ribbon vibrator guide, and a spring-actuated movable frame which shifts with the shift frame and supports the ribbon vibrator and its guide, substantially as set forth.

17. In a typewriting machine, the combination of a platen carriage, a shift frame which is movable for shifting the carriage, a ribbon, a ribbon vibrator guide, a ribbon vibrator lever, and a spring-actuated movable frame which shifts with the shift frame and on which the vibrator guide is mounted and the vibrator lever is pivoted, substantially as set forth.

18. In a typewriting machine, the combination of a top plate, a platen carriage, a carriage shift frame which is movable for shifting the carriage, a ribbon, a ribbon vibrator, a ribbon vibrator lever, a spring-actuated movable frame which shifts with the shift frame and pivotally supports the vibrator lever, a universal bar supported by the top plate, and a connection between the vibrator lever and the universal bar, substantially as set forth.

19. In a typewriting machine, the combination of a platen carriage, a shift frame for the carriage, an auxiliary support which exerts a lifting action on the carriage independently of the shift frame, a ribbon, and a ribbon vibrator mounted on the auxiliary support, substantially as set forth.

20. In a typewriting machine, the combination of a platen carriage, an oscillating shift frame for the carriage having a limited movement, means for oscillating the shift frame, an oscillating spring-actuated support having an antifriction bearing acting against the carriage to limit its movement in one direction, a ribbon, and a ribbon vibrator mounted on the spring-actuated support, substantially as set forth.

21. In a typewriting machine, the combination of a platen carriage, a shift frame for the carriage, an independent spring-actuated frame acting directly on the carriage to support at least a portion of its weight, a ribbon, and a ribbon vibrator mounted on the spring-actuated frame, the shift frame and the carriage being detachable from the machine without disconnecting the spring-actuated frame or any of its connected parts, substantially as set forth.

22. In a typewriting machine, the combination of a top plate, ribbon spools mounted on the top plate, a platen carriage, a shift frame for the carriage mounted on the top plate, a ribbon vibrator, and an independent spring-actuated frame mounted on the top plate and on which the ribbon vibrator is mounted and acting to automatically maintain the vibrator in fixed relation to the carriage in its shifting movements, substantially as set forth.

23. In a typewriting machine, the combination of a platen carriage, a shift frame for the carriage, a ribbon guide support which is independent of but shifts with the shift frame, a ribbon vibrator, a guide for the ribbon vibrator mounted on said support, and a line gage mounted on the vibrator guide, substantially as set forth.

24. 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, a ribbon vibrator, and a guide for the ribbon vibrator mounted on the auxiliary support, substantially as set forth.

Witness my hand, this 28th day of January, 1911.

EMMIT G. LATTA.

Witnesses:

CHESTER W. REID,
OTTO A. SCHILLY.