

O. PETERMANN.
TYPE WRITING MACHINE.

APPLICATION FILED APR. 16, 1912. RENEWED OCT. 9, 1914.

1,121,043.

Patented Dec. 15, 1914.

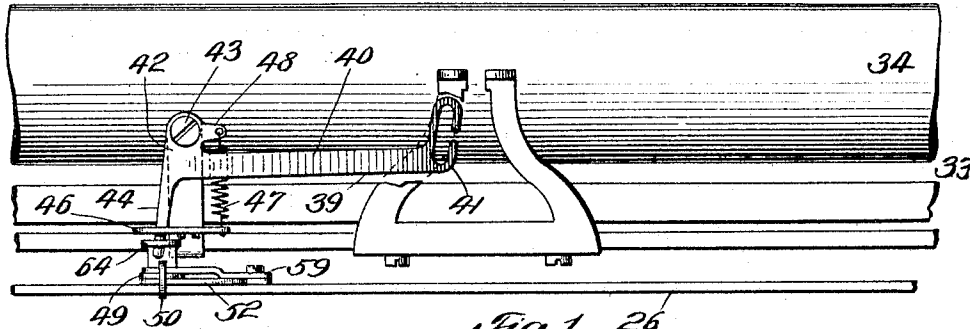


Fig. 1.

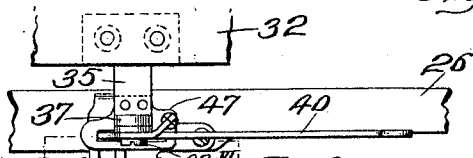


Fig. 3.

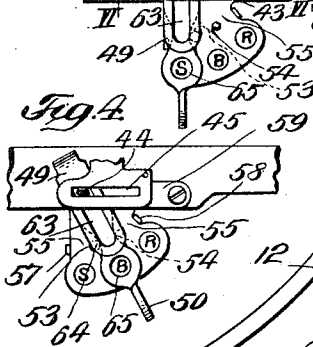


Fig. 4.

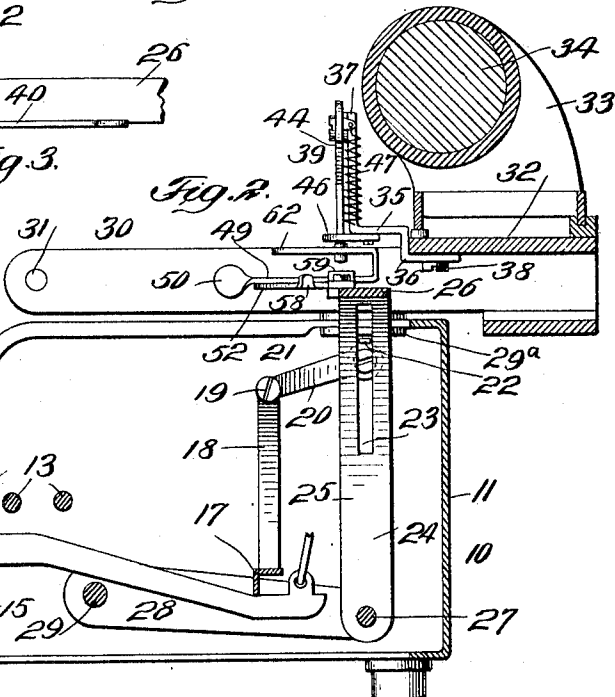


Fig. 2.

Fig. 5.

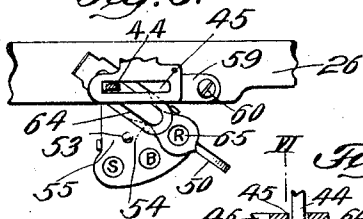


Fig. 7.

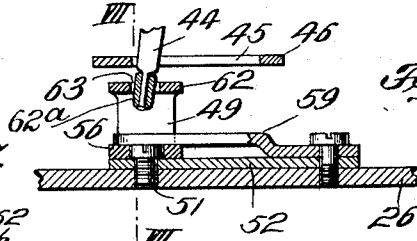


Fig. 6.

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UNITED STATES PATENT OFFICE.

OTTO PETERMANN, OF GROTON, NEW YORK, ASSIGNOR TO CORONA TYPEWRITER COMPANY, INCORPORATED, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

1,121,043.

Specification of Letters Patent.

Patented Dec. 15, 1914.

Application filed April 16, 1912, Serial No. 691,144. Renewed October 9, 1914. Serial No. 865,949.

To all whom it may concern:

Be it known that I, OTTO PETERMANN, a citizen of the Republic of Switzerland, and a resident of Groton, county of Tompkins, and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a full, clear, and exact description.

This invention relates more particularly to mechanism for vibrating a ribbon transversely of a platen to cover and uncover the printing point of visible or front strike type-writing machines.

One of the principal objects of the invention is to provide simple and efficient means which is adapted to positively move the ribbon to present different fields or zones of different colors to the printing point, or which is so arranged that the said ribbon may be made to remain inactive in order that stencils may be made.

Another object of the invention is to provide mechanism which is particularly adapted for that type of machines in which the platen carriage is foldable forward in order that the machine may be more compact when not in use than when in its normal working position to adapt the machine for transportation or other purposes.

Other objects of the invention are to provide a mechanism which will positively prevent the ribbon from being thrown too high when the keys are given blows of unusual force; to provide means whereby the vibrator may be brought back to a definite and predetermined position and which will positively and rigidly hold the ribbon vibrator without excessive play no matter what its position may be; and to provide mechanism which is readily accessible and convenient for use.

A further object of the invention is to provide a mechanism which may be positively adjusted to different positions so that in one position the ribbon vibrator may remain inactive to adapt the machine for making stencils, in the second position will impart a throw to the vibrator sufficient to present one field or zone to the printing point, and in a third position will vary the extent of throw of the vibrator to present another field or zone of the ribbon to the printing point.

A further object of the invention is to provide simple and efficient manually operated means for positively indicating the field or zone to be presented to the printing point and which always throws the ribbon to the same extent during the same adjustment.

A still further object of the invention is to provide simple means comprising a comparatively few parts which may be readily made and assembled, and to provide means whereby the vibrator when moved will be positively returned always to its normal position below the printing point.

With these and other objects in view, the invention will be hereinafter more particularly described with reference to the accompanying drawings, which form a part of this specification, and will then be pointed out in the claims at the end of the description.

In the drawings, Figure 1 is a fragmentary front elevation of the upper portion of a typewriting machine showing in front elevation one form of the invention applied thereto. Fig. 2 is a fragmentary longitudinal section of one form of machine in which the carriage and platen is mounted upon a foldable support adapted to be folded forward into overhanging relation to the keyboard, the vibrating mechanism being shown in side elevation. Fig. 3 is a fragmentary plan view of the vibrating mechanism showing the parts in a position wherein the ribbon vibrator remains inactive in order that stencils may be made. Fig. 4 is a fragmentary view showing the parts adjusted in order that one field of the ribbon, as black for example, may be moved to cover the printing point. Fig. 5 is a view similar to Fig. 4 except that the parts are positioned to give a greater throw to the ribbon vibrator to present another field of the ribbon, as red for example, over the printing point. Fig. 6 is a transverse section taken on the line VI—VI of Figs. 3 and 7; and Fig. 7 is a vertical section taken on the line VII—VII of Fig. 6.

While I show the invention as applied more particularly to a machine in which the carriage and platen are folded forward or otherwise capable of being moved into compact relation to another part of the machine when not in use, it will be understood that

the invention may be also applied to type-writing and similar machines of various kinds and constructions.

The frame 10 has a rear plate portion 11 and sides 12. Supported by the sides 12 are a plurality of rods 13 spaced apart and arranged in parallel relation, and from each rod 13 is suspended a plurality of key-levers 14. Each key-lever is held in its normal position by a spring 15, one end of which is fastened to one of the key-levers and the other end to a transversely extending bar or plate 16. Each key-lever is provided with the usual key at one end and has its inner end provided with means to connect the same to one of the type-bars, not shown, in the usual way. A universal bar 17 extends over the key-levers and this universal bar has arms 18 which are pivotally connected at 19 to the arms 20 of bell-crank levers 21. There are two bell-crank levers pivoted to opposite sides of the machine and each bell-crank lever has an end 22 which is adapted to enter a vertically arranged slot 23 in vertical arms 24 of a rocking frame 25. These arms 24 are connected at their upper ends by a transverse bar or plate 26 which may be formed integral with the arms 24, said arms being held to a transversely extending rod 27. As each key-lever is depressed, the universal bar will rock the bell-crank levers on their pivots, and by reason of the connection of the bell-crank levers with the rocking frame 25, the latter with the bar 26 will be rocked back and forth with the movement of each key-lever.

The rod 27 may be connected to one or more arms 28 which are held to a rod 29, and connected also to the rods are vertically disposed slides, not shown, which move in bearings 29^a located at the rear corners of the machine, and said posts or slides are connected to one member of a foldable or two-part support 30. The parts of the foldable support are pivoted together, at 31, and to the foldable member of the support is held a carriage bed 32 along which the carriage 33 is adapted to travel. The carriage has the platen 34 mounted thereon and said platen and carriage as well as the bed 32 are adapted to be folded forward on the pivot 31 in order that the machine may be more compact when not in use, or the carriage and its support may be shifted vertically to adapt the type-heads or blocks to have a plurality of characters thereon in the usual way. The parts thus far described may be of any preferred construction.

A bracket or support 35 has an angular horizontal portion 36 and an upright portion 37, and this bracket is secured by one or more screws 38 to the under side of the carriage bed 32 and has its vertical part 37 projecting upward in front of the platen 34. This bracket 35 supports the ribbon vi-

brator 39. The vibrator 39 is substantially the form of a bell-crank lever and has a horizontally extending arm 40 which lies substantially parallel with the axis of the platen when in its normal position. On the outer end of the vibrator arm is a substantially G-shaped loop 41 through which the ribbon may be threaded and by which the ribbon may be moved to and from the printing point as the vibrator is operated. The vibrator has an upwardly extending portion 42 which is pivoted by a screw 43 or otherwise to the upper end of the arm 37 of the bracket 35, and said vibrator has a downwardly extending arm 44 which is adapted to enter a slot 45 in a guide bracket or member 46. This bracket or member 46 is secured to the horizontal portion of the bracket 35 under the same and has its slot 45 arranged transversely of the machine and serves to hold and guide the vibrator against forward or backward movement during the vibration of the ribbon. A spring 47 has one end fastened to a lug 48 on the vibrator and its other end fastened to the guide plate or member 46 and said spring is preferably a light one, and while it tends to restore the ribbon vibrator to its normal position, it is primarily intended to hold the ribbon vibrator in its normal position when the carriage and platen are moved to a folded position.

To operate the ribbon vibrator and to impart various throws thereto or to permit the vibrator to remain inactive, various means may be employed. As one means, I provide an actuating device or member 49. This member 49 is in the form of a lever having a finger portion 50 at one end by which the said lever may be manually operated, the said finger portion being formed as a part of the lever and extending vertically to adapt the same to be more readily grasped to move the lever. This lever is pivoted on a shoulder screw 51, which latter may be secured to the rocking bar or plate 26 of the rocking frame 25. The lever or device 49 is pivotally supported on a bracket or plate 52, the latter being securely held to the rocking bar 26 and is provided with projections 53 and 54, which form spaces 55 in which the body part 56 of the lever 49 is adapted to be movably held, so that by shifting the lever on its pivot, the said lever may be frictionally held against movement in any one of three adjustments. The plate or bracket 52 may be of steel or spring metal to yield to the movement of the lever and may have stops 57 and 58 located at opposite edges of said plate serving to limit the lateral movement of the lever 49 about said plate or bracket. The stops 53 and 54 with the stops 57 and 58 form three spaces for a like number of adjustments of the lever 49. The stop 53 may be higher than the stop 54.

to require somewhat more effort to move the lever to a position for stenciling than to either of the other positions, for the reason that the lever 49 is not in the position for stenciling as often as it is for either of the colors for printing, consequently it is better to make it a little more difficult to shift it to the least used position in order that the lever will be more likely to stop at a position for printing the color which is next to that of the stenciling or inactive position of the vibrator.

The lever 49 has its body part 56 held to the pintle or pin 51 by a bracket or plate 59, one end of which extends over the pin 51 and the other end is secured by a screw 60 or otherwise to the rocking bar 26 so that as said bar is rocked back and forth in the manner hereinbefore described, the lever 49 partakes of its rocking movement and at the same time is so supported thereon that it may be adjusted about the bracket or plate 52. This lever 49 has an upright portion 61 and a horizontally extending portion 62 which overhangs the body part 56 and is substantially parallel thereto. In the part 62 is a slot 63 which extends lengthwise of the part 62 and into which the lower end of the vertical arm 44 of the ribbon vibrator is adapted to enter, said arm being provided with a roller 62^a on the lower engaging end thereof if desired to reduce the friction during the actuation of the vibrator. The slot 63 extends lengthwise of the lever and of the machine and at an angle to the slot 45 of the plate 46 through which the lower part of the arm 44 of the vibrator also passes, thus the vibrator arm enters two slots one at an angle with respect to each other. In one position, the slot 63 is at substantially right angles to the slot 45 and in its other adjustments is at an acute angle thereto, varying in degree according to the adjustment of the lever. In the position shown in Fig. 3, the slot 63 is at right angles to the slot 45 and therefore the rocking movement of the bar 26 and the lever 49 will have no effect on the vibrator, and consequently, the latter will remain inactive. In this position, the ribbon will remain below the printing point and the machine may at this time be used for making stencils instead of printing upon paper through the ribbon in the usual way. If the lever is shifted to the position shown in Fig. 4, the slot 63 in this case will be positioned so that the sides 64 of said slot will form an engaging surface or surfaces for the end of the vibrator arm 44. The vibrator will be actuated by the movement of the bar 26 and lever 49, as the sides 64 of the slot 63 act as cams and cause the arm 44 of the vibrator to move along the same and thereby shift the vibrator on its pivot and force the ribbon to the printing point during the movement of

the rocking bar in one direction, and will positively restore the ribbon to its normal position on the return movement of said bar. A further adjustment of the lever 49 to the position shown in Fig. 5 will increase the angular relation of the slot 63 with respect to the slot 45 and as the rocking bar 26 is operated by the keys, as hereinbefore described, the sides 64 will impart a greater throw to the vibrator and consequently to the ribbon, thus presenting a different field or zone of the ribbon to the printing point, and on the return movement of the rocking bar 26 will positively restore the ribbon vibrator again to its normal position, though, it will be understood that instead of the three positions mentioned, the lever may be adjusted to any intermediate position to utilize the entire surface of the ribbon where it is of a single color instead of having a plurality of colors thereon. By this means, the vibrator is positively held to move parallel with the face of the platen and transversely thereof and against any swinging movement except in a vertical direction, and said ribbon vibrator is rigidly held by reason of the cooperating slotted members in such a way that it will not move to a greater degree when unusually hard blows are given to the keys than would be the case with the ordinary blow, as the arm 44 of the said vibrator is positively though slidingly held during its vibratory movement, both in presenting the ribbon to the printing point and in restoring the same to its normal position below the printing point.

Where a bichrome ribbon is used, the lever in such case may have but three adjustments as shown, one for stenciling purposes in which the vibrator remains inactive, a second for one color or field of the ribbon, as black, and a third for a different field of the ribbon as red. The plate 52 in such case may be provided with three depressions to receive disks or paper or other material, one for stenciling indicated by a letter S; a second, the letter B indicating black, and the third the letter R indicating red, though this arrangement may be changed at will and the characters likewise changed and the latter formed on or held to the plate 52 in any desired way. The lever 49 has an opening 65 which is adapted to register with either of the letters and serve as indicating means so that the operator may quickly determine which field of the ribbon is being used or whether or not the ribbon is being operated at all in case the machine is being used for the purpose of making stencils.

It will be evident that by reason of the slot 63 of the lever 49 that the platen carriage and support may be shifted vertically to adapt the type heads to have a plurality of characters thereon in the usual way, that

is for the upper case, lower case, and figures, etc., and that when it is desired to fold the machine for compactness, the arm 44 of the vibrator which is supported by the bracket 35 held to the bed 32 and which partakes of the folding movement of the carriage, may be withdrawn from the lever, and on restoring the carriage to its normal working position, the said arm of the lever may be made to again enter the slot 63 of the lever 49 to be operated in the manner already described. The lever or actuating member 49 remains in its normal working position and always in coöperation with the key-actuated means as the said lever is supported on the rocking frame which may serve also as a means for actuating a part of the escapement mechanism.

The invention will be readily understood from the foregoing description when taken in connection with the accompanying drawings. It will be seen that when any one of the keys is operated, the universal bar will be thereby operated and through it and the bell-crank levers 20, the rocking frame 25 with its transverse bar 26 will be moved back and forth, and owing to the lever being supported on said bar it will rock therewith. If the lever is in the position shown in Fig. 3, the vibrator 40 will remain inactive owing to the position of the slots 63, and if the lever 49 is moved to the position shown in Fig. 4, the black field of the ribbon will be presented to the printing point, while on farther movement of the lever as indicated in Fig. 5, the red field of the ribbon will be presented to the printing point.

From the foregoing, it will be seen that simple and efficient mechanism is provided for vibrating the ribbon to cause the same to cover or uncover the printing point; that said mechanism is particularly adapted for typewriting machines in which the carriage and bed is foldable into compact relation to another part of the machine; that said mechanism is so constructed that the vibrator forming a part thereof will be positively actuated both to move the ribbon to cover the printing point and to restore the ribbon below the printing point; that simple means is provided whereby the device without any change whatever is adapted for stenciling purposes; and that said mechanism is simple in construction and has very simple means for adjustment.

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

1. In a typewriting machine, the combination of a support, a bracket held to said support, a vibrator pivotally held to the bracket, a slotted member secured to the bracket through which a part of the vibrator is adapted to pass, a pivotally held rocking member having a slot in a part thereof

arranged at an angle with respect to the slot of the first-mentioned member into which the same part of the vibrator is adapted to enter so as to be loosely confined in said slots, and means for actuating said rocking member to positively move the vibrator.

2. In a typewriting machine, the combination of a support, a vibrator pivotally held to the support, a normally stationary slotted member through which a part of the vibrator is adapted to pass, an adjustable and rocking member having a slot in a part thereof arranged at an angle with respect to the slot of the normally stationary member into which the same part of the vibrator is adapted to enter, and means for actuating said rocking member to positively move the vibrator.

3. In a typewriting machine, the combination of a pivotally held vibrator, a member adapted to engage and guide the vibrator, and a movable pivotally held and adjustable member coöperating with the first-mentioned member to positively move the vibrator and to restore it to its normal position and adapted in its different positions to impart different throws to the vibrator.

4. In a typewriting machine, the combination of supporting means, a vibrator pivotally held to said supporting means, a slotted member projecting from the supporting means through which a part of the vibrator is adapted to pass, a rocking member having a slot in a part thereof arranged at an angle with respect to the slot of the first-mentioned member into which the same part of the vibrator is adapted to enter, and means for adjusting the rocking member to positively move the vibrator to vary the throw thereof to present different fields of the ribbon to the printing point or to permit the vibrator to remain inactive for stenciling.

5. In a typewriting machine, the combination of a support, a bracket held to the support, a bell-crank vibrator pivotally held to the bracket, a slotted member projecting from the bracket through which a part of the vibrator is adapted to pass, a pivotally held rocking lever having a slot in a part thereof arranged at an angle with respect to the slot of said member into which the same part of the vibrator is adapted to enter so as to be loosely confined in said slots, and means for actuating said lever to positively move the vibrator in opposite directions to vary the throw thereof or to permit the vibrator to remain inactive.

6. In a typewriting machine, the combination of a support, a carriage adapted to travel along said support, a slotted member held to the support, a vibrator pivotally held to the support and carriage and having a part thereof entering the slot of said member, a second adjustable member having

a guiding part to receive the same part of the vibrator to permit the vibrator to remain inactive in one of its adjustments and in other positions to operate the vibrator to various extents according to its adjustment, and means for rocking said second member.

7. In a typewriting machine, the combination of a support, a carriage adapted to travel along said support, a vibrator movable on said support, and two members relatively movable with respect to each other and having a part of the vibrator engaged by one of said members and adapted to positively operate said vibrator to different extents or to permit the vibrator to remain inactive.

8. In a typewriting machine, the combination of a support, a carriage adapted to travel along said support, a guide member held to move with the support, a movable vibrator having a part thereof guided by said member, an adjustable and actuating member having a guiding portion to receive a part of the vibrator to permit the vibrator to remain inactive in one position, and in other positions to operate the vibrator to various extents according to its adjustment.

9. In a typewriting machine, the combination of a support, a carriage adapted to travel along said support, a guide member, a pivotally held vibrator having a part thereof guided by said member, an adjustable member having a guiding portion arranged at an angle with respect to the guide member and adapted to receive a part of the vibrator to permit the vibrator to remain inactive in one position, and in other positions to positively operate the vibrator in both directions and to various extents according to its adjustment, and means for moving the adjustable member.

10. In a typewriting machine, the combination of a ribbon vibrator, two members relatively movable with respect to each other and having slotted portions angularly arranged with respect to each other into both of which the same part of the vibrator is adapted to pass, and means for actuating one of said members.

11. In a typewriting machine, the combination of a pivotally held ribbon vibrator, a guide member, an adjustable actuating member having a slot angularly arranged with respect to the guide member into which a part of the vibrator is adapted to pass and adapted to permit the vibrator to remain inactive in one position and to operate the vibrator to different extents in other positions, and means for operating the actuating member.

12. In a typewriting machine, the combination of a movable ribbon vibrator, a rocking member, and a pivotally held and adjustable actuating member mounted on said rocking member and movable therewith and

having a slotted portion directly engaging and positively operating the vibrator in both directions and imparting throws of different extents to the vibrator.

13. In a typewriting machine, the combination of a movable ribbon vibrator, a rocking member, a pivotally held and adjustable member mounted on said rocking member and movable therewith and having cam surfaces directly engaging and positively operating the vibrator in both directions and imparting different throws to the vibrator or permitting the vibrator to remain inactive.

14. In a typewriting machine, a foldable support, a ribbon vibrator movably held on said support, an adjustable member connected to the vibrator to positively operate the same in both directions when the parts are in normal working position a rocking bar, and means whereby the vibrator may be moved with a part of the support out of operative connection with the rocking bar.

15. In a typewriting machine, a foldable support, a ribbon vibrator movably held to said support, and means directly connected to the vibrator for positively operating the same in both directions, a part of which is foldable with the support.

16. In a typewriting machine, the combination of a movable ribbon vibrator, and pivotally held and rocking means for positively moving the vibrator in opposite directions or permitting the vibrator to remain inactive.

17. In a typewriting machine, the combination of a support, a bell-crank vibrator pivotally held to said support, a slotted member adapted to receive one arm of the vibrator, a pivotally held and adjustable second member provided with a slot arranged at an angle with respect to the slot of the first-mentioned member and adapted also to receive the same arm of the vibrator, and means for actuating the second member.

18. In a typewriting machine, the combination of a support, a bell-crank vibrator pivotally held to said support, a guide member adapted to guide one arm of the vibrator, an adjustable second member provided with a slot arranged at an angle with respect to the slot of the first-mentioned member and adapted also to receive the same arm of the bell-crank lever, and means for actuating the second member.

19. In a typewriting machine, the combination of a support, a bell-crank vibrator pivotally held to said support, and an adjustable lever provided with a slot to receive one arm of the bell-crank vibrator and to positively actuate the vibrator in opposite directions or permit the same to remain inactive, and means for actuating the lever.

20. In a typewriting machine, the combination of a support, a vibrator pivotally

held to said support, two members relatively movable with respect to each other and both of which are adapted to engage the same part of the vibrator to positively move the same to cause the ribbon to cover and uncover the printing point, and means for actuating one only of the members.

21. In a typewriting machine, the combination of a support, a vibrator movably held to said support, and a pivotally held member having a guiding portion adapted to engage directly a part of the vibrator to positively move the same to cause the ribbon to cover and uncover the printing point or to permit the ribbon to remain inactive, and means for actuating said member.

22. In a typewriting machine, the combination of a support, a carriage mounted to travel along said support, a pivotally held ribbon vibrator, a rocking element, a pivotally held and adjustable member supported on said element and having a guiding portion to receive one part of the vibrator, and means for adjusting said member whereby the vibrator may remain inactive or have different throws imparted thereto according to the adjustment of said member.

23. In a typewriting machine, the combination of a support, a carriage mounted to travel along said support, a pivotally held ribbon vibrator, a rocking element, a slotted guide member receiving a part of the vibrator, a pivotally held and adjustable lever supported on said element and having a guiding portion to receive the same part of the vibrator as the slotted member, a spring normally holding the vibrator against pivotal movement, and means for adjusting the lever whereby the vibrator may remain inactive or have different throws imparted thereto according to the adjustment of said lever.

24. In a ribbon vibrator, the combination of a support, a bracket, a bell-crank vibrator pivotally held to said bracket, a slotted plate mounted on the bracket and extending transversely of the machine and adapted to receive one arm of the vibrator, a spring normally holding the vibrator against upward movement, a rocking bar, a lever pivotally held to said bar and having a slotted portion adapted to receive the same arm of the vibrator, and means for varying the angle of the slotted portion of the lever with respect to the slot in the plate to permit the vibrator to remain inactive in one position and to vary the throw of the vibrator in other positions.

25. In a ribbon vibrator, the combination of a support, a platen and carriage adapted to travel along said support, a bracket, a bell-crank vibrator pivotally held to said bracket and having one arm substantially parallel to the axis of the platen, a slotted plate mounted on the bracket and extending

transversely of the machine and adapted to receive one arm of the vibrator, a rocking bar, a pivotally held lever having a guiding portion adapted to receive the same arm of the vibrator, and means for varying the angle of the slotted portion of the lever with respect to the slot in the bracket to permit the vibrator to remain inactive in one position and to vary the throw of the vibrator in other positions.

26. In a ribbon vibrator, the combination of a support, a bell-crank vibrator pivotally held to said support, a slotted bracket adapted to receive one end of the vibrator, actuating means, a pivotally held lever supported on said actuating means and having a body portion and an overhanging slotted part substantially parallel to the body portion and adapted to receive the same end of the vibrator, and means for holding the lever in various adjustments to adapt the vibrator to remain inactive in one position and to vary the throw thereof in other positions of said levers.

27. In a ribbon vibrator, the combination of a support, a vibrator pivotally held to said support, a slotted bracket adapted to receive a part of the vibrator, actuating means, a pivotally held lever supported on said actuating means and having a body portion and an overhanging slotted part substantially parallel to the body portion and adapted to receive the same part of the vibrator, and means for holding the lever in various adjustments to adapt the vibrator to remain inactive in one position and to vary the throw thereof in other positions of said lever.

28. In a ribbon vibrator, the combination of a support, a vibrator pivotally held to said support, a guide bracket adapted to engage one end of the vibrator, actuating means, a pivotally held lever supported on said actuating means and having a body portion and an overhanging part substantially parallel to the body portion and adapted to directly engage the same end of the vibrator, and means for holding the lever in various adjustments to adapt the vibrator to remain inactive in one position and to vary the throw thereof of other positions of the lever.

29. In a typewriting machine, the combination of a bell-crank vibrator, a slotted member adapted to receive one arm of the vibrator, a slotted and pivotally held lever adapted to receive the same arm of said vibrator and arranged at an angle with respect to the slot of the first-mentioned member, a spring plate having parts adapted to frictionally hold the lever in various adjustments, means to indicate the adjusted positions of the lever, said lever having an opening to permit the indicating means to be seen, and a finger portion forming a part of said lever whereby the latter may be adjusted.

30. In a typewriting machine, the combination of a vibrator, a slotted and pivotally held actuating lever adapted to receive a part of said vibrator, a spring plate having 5 parts adapted to frictionally hold the lever in various adjustments, and means to indicate the adjusted positions of the lever, said lever having an opening to permit the indicating means to be seen.
- 10 31. In a typewriting machine, the combination of a vibrator, a guide member for a part of the vibrator, a pivotally held actuating lever adapted to receive the guided part of said vibrator and arranged at an angle 15 with respect to the guide member, a plate having parts adapted to frictionally hold the lever in various adjustments, means to indicate the adjusted positions of the lever, said lever having an opening to permit the indicating means to be seen, and a finger portion 20 forming a part of said lever whereby the latter may be adjusted.

This specification signed and witnessed
this 12th day of April A. D. 1912.

OTTO PETERMANN.

Witnesses:

R. I. ALLEN,

C. T. YATES.