No. 869,502. PATENTED OCT. 29, 1907.

H. W. MERRITT.

TYPE WRITING MACHINE.

APPLICATION FILED APR. 24, 1905.

2 SHEETS—SHEET 1.

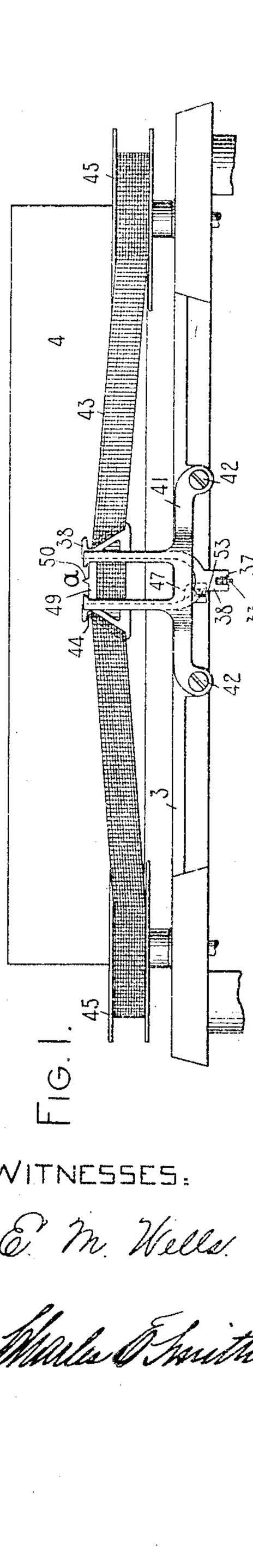

FIG. 1.

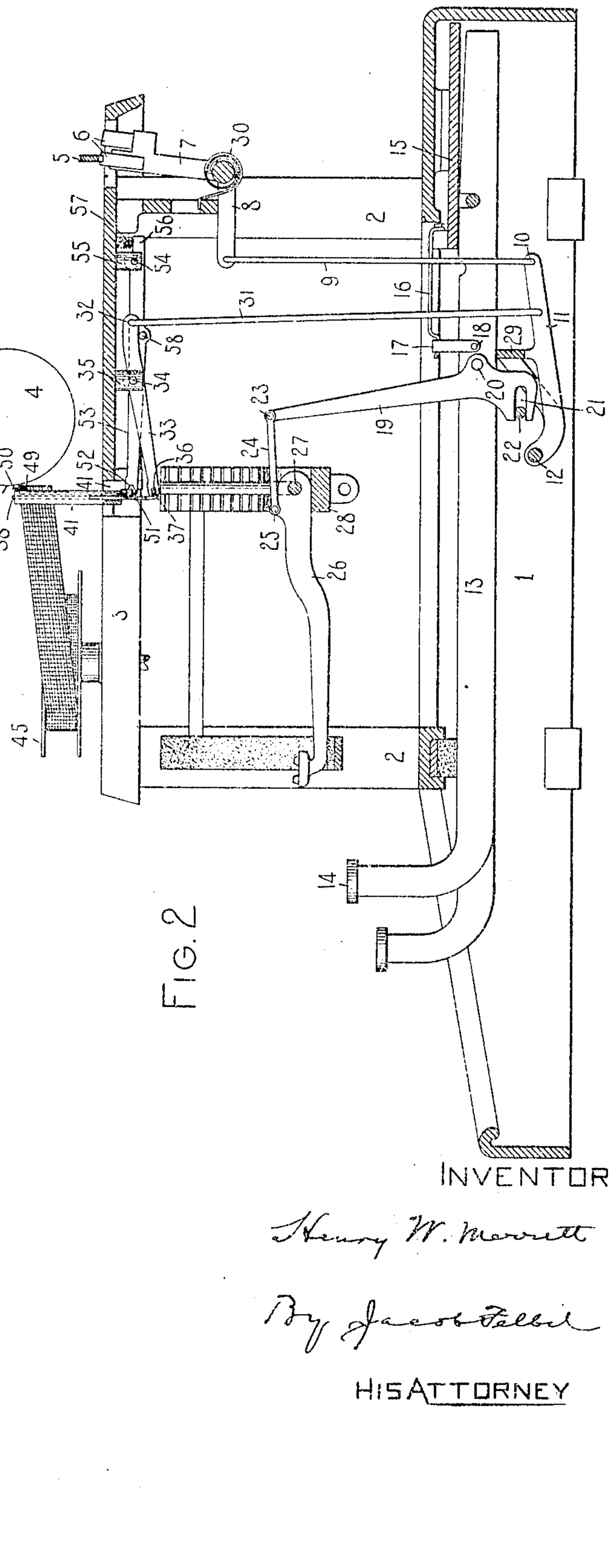

FIG. 2.

WITNESSES:

E. M. Wells.

Charles E. Smith

INVENTOR

Henry W. Merritt

By Jacob Tabel

HIS ATTORNEY

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2 SHEETS—SHEET 2.

FIG. 5.

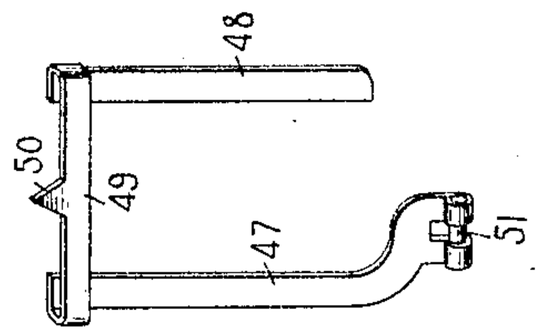


FIG. 6.

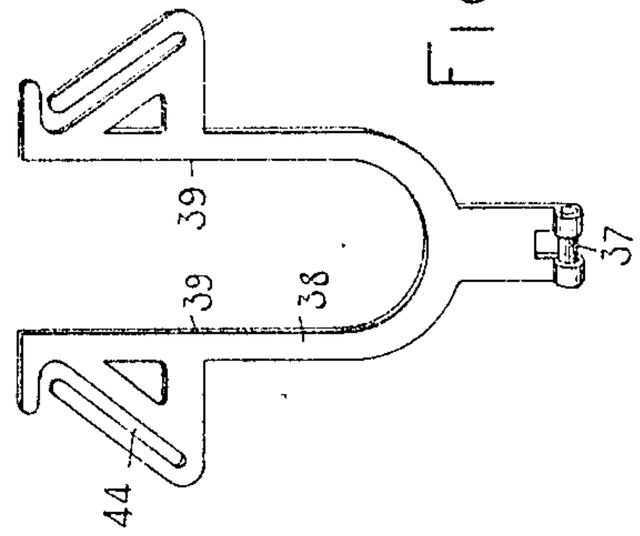


FIG. 3.

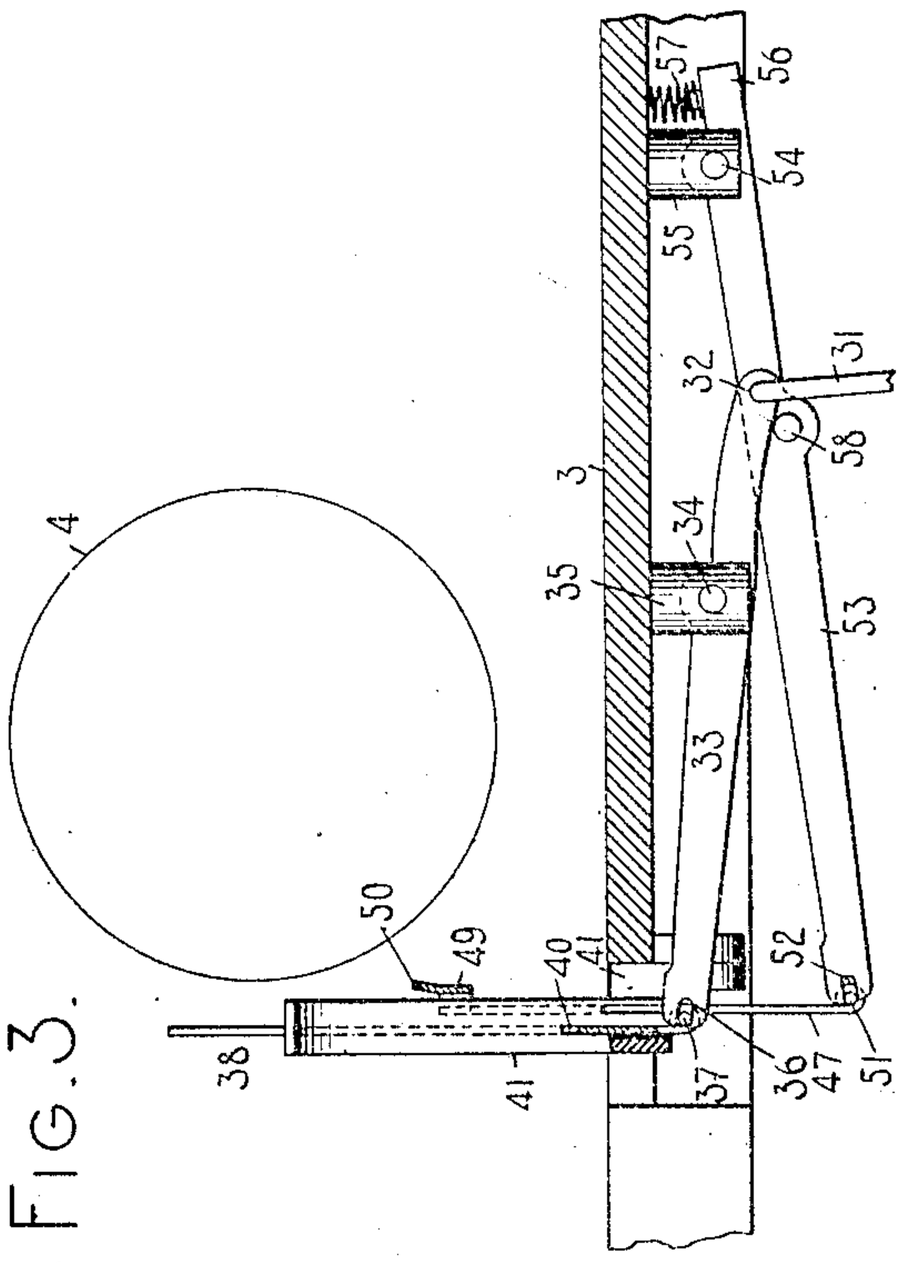
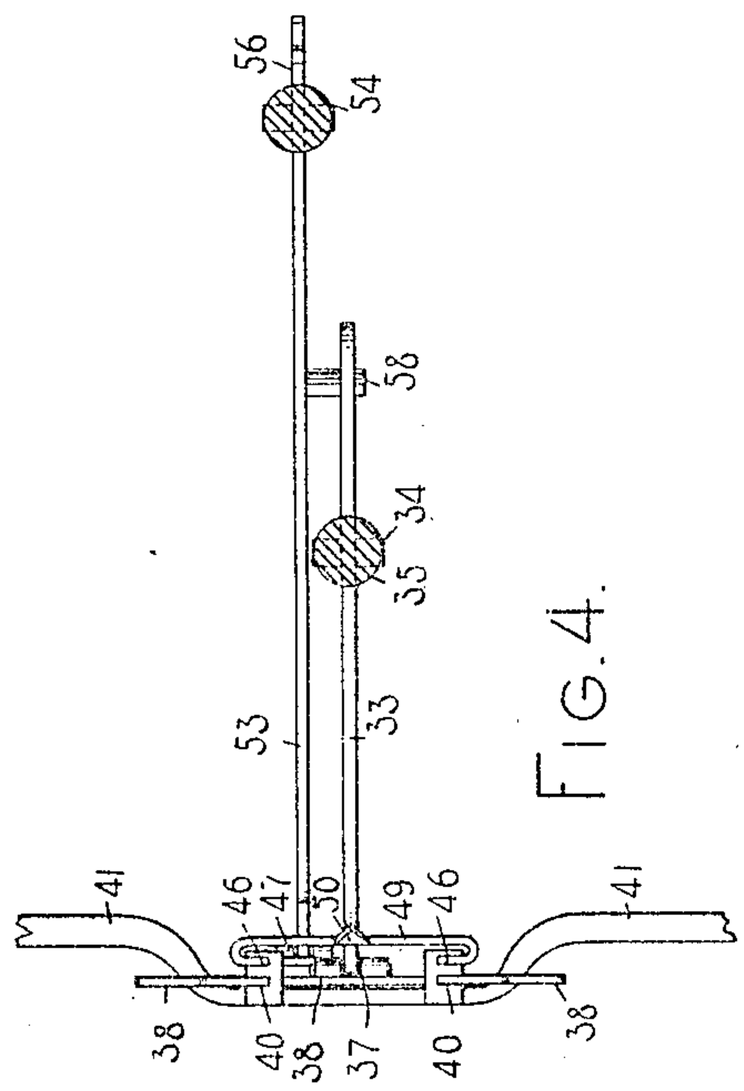


FIG. 4.



WITNESSES.

E. M. Wells.

Willis E. Smith

INVENTOR.

Henry W. Merritt

By Jacob Tabel

HIS ATTORNEY

UNITED STATES PATENT OFFICE.

HENRY W. MERRITT, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE MONARCH TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

No. 869,502. Specification of Letters Patent. Patented Oct. 29, 1907.

Application filed April 24, 1905. Serial No. 257,189.

To all whom it may concern:

Be it known that I, HENRY W. MERRITT, a citizen of the United States, and resident of Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to typewriting machines and more particularly to printing point indicating mechanism therefor.

The object of my invention is to provide simple, cheap and efficient automatically actuated printing point mechanism, which is particularly adapted for so-called "visible" writing machines wherein ordinarily the ribbon is vibrated to and from the printing point at each printing operation.

To these and other ends which will hereinafter appear, my invention consists in the features of construction, arrangement of parts and combinations of devices to be hereinafter explained and more particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a front elevation showing the upper portion of a typewriting machine, with my invention applied thereto. Fig. 2 is a vertical central longitudinal sectional view taken from front to rear of the machine. Fig. 3 is an enlarged detail vertical sectional view of the indicating mechanism and certain of the associated parts. Fig. 4 is a plan view of the same, the top plate of the machine being sectioned away. Fig. 5 is an enlarged detail rear perspective view of the indicator. Fig. 6 is an enlarged detail rear view of the ribbon vibrator.

The base 1 of the machine is provided with corner posts 2 supporting a top plate 3, on which a suitable carriage (not shown) is adapted to travel from side to side of the machine. The carriage supports the usual cylindrical platen 4 and carries a feed rack 5 with which feed dogs 6 coöperate to afford a step-by-step feed of the carriage from right to left. The feed dogs are carried by the usual dog rocker 7, which is pivoted to a suitable bracket supported by the frame of the machine and has a forwardly extending arm 8 to which a depending link 9 is connected. The lower end of the link 9 is pivoted at 10 to a rearwardly extending arm 11 of a universal bar frame pivoted at 12 to the base of the machine. Key levers 13 are provided with finger keys 14 and are fulcrumed against a fulcrum plate 15 supported by the base of the machine. Each key lever is restored to its normal position by a spring 16 connected at its forward free end to a strap or link 17 that is pivoted at 18 to the associated key lever. Each key lever has a sub-lever 19 pivoted thereto at 20, the lower ends of the sub-levers being slotted at 21 for cooperation with a fixed fulcrum rod 22 that extends beneath the key levers and is secured to the base of the machine. The upper end of each sub-lever is pivoted at 23 to a link 24, the forward end of which is pivoted at 25 to a type bar 26, the latter being pivoted on a pivot wire 27 carried by a segment 28. A depression of each key lever effects an upwardly and rearwardly swinging movement of the associated type bar to impact with the platen at the printing point *a*. A universal bar 29 is secured to the universal bar frame and extends beneath the various key levers so that a depression of any key lever will effect a downward pull on the link 9 so as to produce a movement of the dog rocker against the tension of its restoring spring 30, thereby affording a step-by-step feed movement of the carriage as the key levers are actuated. The arm 11 also has an upwardly extending link 31 pivoted thereto, the upper end of said link being pivoted at 32 to a forwardly extending vibrator actuating lever 33 of the first order, pivoted at 34 to a stud 35 that extends downwardly from the top plate 3 of the machine. The forward end of this actuating lever 33 is bifurcated at 36 to receive the pivot pin 37 of a ribbon vibrator 38. This ribbon vibrator may be of any suitable construction and in the present instance is illustrated as a bifurcated vibrator, the inner edges 39 of the bifurcated portion being received in grooves 40 in a guide 41 that may be secured to the top plate of the machine by screws 42. The guide is bifurcated as shown in Fig. 1 to provide upright arms, in the outer sides of which are the guiding grooves 40 and the types impact with the ribbon 43 between the guide arms. The ribbon is received within guide openings 44 in the vibrator and is fed freely therethrough from one ribbon spool 45 to another by any suitable means. The mechanism thus far described is or may be of the usual construction such as that employed, for instance, in the Monarch typewriting machine.

A second set of guide grooves 46 is provided in the guide arms, said grooves being parallel to the grooves 40 and adapted to receive the upright guide arms or members 47, 48, of an indicator, which is illustrated in detail in Fig. 5. The guide arms 47 and 48 are connected by a cross piece 49 that has an upwardly projecting printing point indicator 50 extending therefrom. The lower end of the arm 47 extends inwardly and is provided with a pivot pin 51 similar to the pivot pin 37 of the ribbon vibrator. This pivot pin 51 is adapted to be received in a bifurcation 52 in a lever 53 of the third order pivoted at 54 to a depending stud 55, extending from the top plate of the machine. The lever extends beyond its pivot so as to form an extension 56 against which one end of an expansion spring 57 bears, the upper end of the spring being adapted to bear against the top plate of the machine, thus tending to elevate the forward end of the lever 53 and the printing point indicator carried thereby. A pin 58 extends laterally

from the lever 53 and into the path of the ribbon vibrator actuating lever 33, so that a downward movement of the rear end of the lever 33 during the elevation of the ribbon vibrator, will cause the forward end of the lever 53 to be depressed, thus effecting a downward movement of the printing point indicator. In the normal position of the parts the printing point indicator is in an elevated position so as to register with the bottom of a letter imprinted at the printing point, as indicated in Fig. 1; whereas the ribbon vibrator is in the lowered position, thus maintaining the ribbon away from the printing point to expose the last written letter. The construction is such that a depression of a finger key will effect an upward movement of the ribbon vibrator so as to interpose the ribbon in the path of the type which is being moved to the printing position, and will simultaneously withdraw the printing point indicator from the indicating position so that it will not interfere with the imprinting of a character at the printing point. When pressure on the key is released, the indicator will be automatically moved up to the indicating position and the ribbon vibrator will be lowered so as to expose the last written character.

It will be observed that by my invention I have provided a simple, cheap and efficient printing point indicator which may be readily applied to existing forms of typewriting machines without material modification of such machines, and that in the normal position of the parts, the indicator will always be in the indicating position, but will nevertheless be automatically withdrawn from the indicating position during the printing operation; that the ribbon vibrator and indicator move vertically in opposite directions in their movements from and to the normal positions; that the ribbon vibrator and indicator are arranged side by side in parallel vertical planes and coöperate with actuating levers which are likewise arranged side by side in vertical planes that extend fore and aft of the machine; and that the movement of the indictor to and from the indicating position is controlled by the means for actuating the ribbon vibrator or by the leyer 33.

It should be understood that various changes may be made without departing from the spirit of my invention and that the invention may be applied to various forms of typewriting machines, and more especially to various forms of so-called visible writing machines, and that various changes and modifications may be made to adapt the invention to different forms of machines.

What I claim as new and desire to secure by Letters Patent, is:—

1. In a typewriting machine, the combination of a vertically movable ribbon vibrator, a vertically movable printing point indicator, and means for automatically moving one up when the other is moved down.

2. In a typewriting machine, the combination of a ribbon vibrator, a printing point indicator, and means for automatically moving said vibrator and indicator parallelly and in opposite directions.

3. In a typewriting machine, the combination of a fixed guide, a ribbon vibrator that slides on said guide, an indicator that likewise slides on said guide, means for moving said vibrator at each printing operation, and means for automatically actuating said indicator at each movement of said vibrator.

4. In a typewriting machine, the combination of a fixed guide, a ribbon vibrator that slides on said guide, an indicator that likewise slides on said guide, means for moving said vibrator at each printing operation, and means for automatically actuating said indicator at each movement of said vibrator, the movements of the vibrator and indicator being in opposite directions, so that when the vibrator is moving towards the printing point the indicator will be moving away from the printing point.

5. In a typewriting machine, the combination of two levers, a ribbon vibrator attached to one lever and an indicator attached to the other lever, the indicator being arranged behind the vibrator and in substantial parallelism therewith, and means for actuating the vibrator lever in one direction and for simultaneously actuating the indicator lever in a diametrically opposite direction.

6. In a typewriting machine, the combination of a vibrator, an automatically actuated lever controlling said vibrator, an indicator, and an independent lever controlled by the vibrator lever and controlling the operation of the indicator, the ends of said levers to which the vibrator and indicator are connected moving in opposite directions.

7. In a typewriting machine, the combination of a ribbon vibrator, a printing point indicator that is substantially parallel with said vibrator, said vibrator and indicator moving in opposite directions and in substantially parallel planes, and two automatically actuated levers arranged in parallel planes one controlling the operation of the vibrator and the other the indicator and one of said levers controlling the operation of the other.

8. In a typewriting machine, the combination of a ribbon vibrator, a printing point indicator that is substantially parallel with said vibrator, the vibrator and indicator moving in opposite directions and in substantially parallel planes, two automatically actuated levers arranged in parallel planes, one controlling the operation of the vibrator and the other the indicator and one of said levers controlling the operation of the other, a universal bar, and means for actuating one of said levers from the universal bar.

9. In a typewriting machine, the combination of two actuating levers one of the first order and one of the third order, the former being arranged to actuate the latter, a ribbon vibrator attached to the lever of the first order and an indicator attached to the lever of the third order.

10. In a typewriting machine, the combination of a printing point indicator and ribbon vibrator arranged side-by-side and movable vertically in opposite directions, one member moving up when the other is moving down, levers which are arranged side-by-side and extend fore and aft of the machine and control the movements of the indicator and vibrator, and means for automatically actuating said levers.

11. In a typewriting machine, the combination of a printing point indicator and ribbon vibrator arranged side-by-side and movable vertically in opposite directions, one member moving up when the other is moving down, levers which are arranged side-by-side and extend fore and aft of the machine and control the movements of the indicator and vibrator, a universal bar, and means for operatively connecting said levers to the universal bar.

12. In a typewriting machine, the combination of a printing point indicator and ribbon vibrator arranged side-by-side and movable vertically in opposite directions, one member moving up when the other is moving down, levers which are arranged side-by-side and extend fore and aft of the machine and control the movements of the indicator and vibrator, a pin carried by one of said levers and cooperating with the other lever so that the movement of one lever will affect an actuation of the other, a universal bar, and means for connecting one of said levers to said universal bar.

Signed at Syracuse, in the county of Onondaga and State of New York this 21st day of April A. D. 1905.

HENRY W. MERRITT.

Witnesses:
JOHN S. MITCHELL,
HARRY A. CLEMENT.