No. 865,744. PATENTED SEPT. 10, 1907.

F. A. YOUNG.

TYPE WRITING MACHINE.

APPLICATION FILED JULY 6, 1905.

2 SHEETS—SHEET 1.

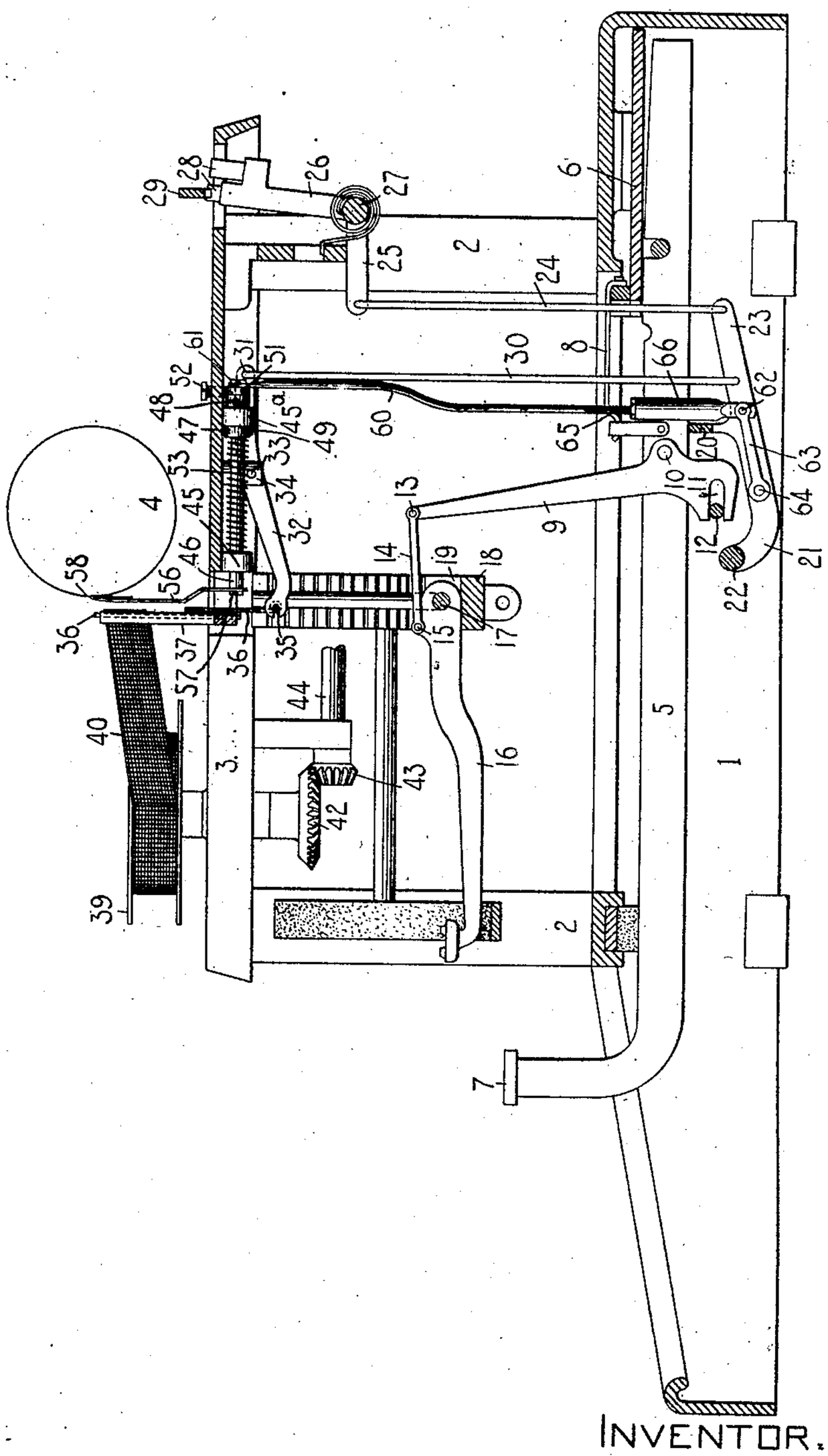

FIG. 1.

WITNESSES:

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2 SHEETS—SHEET 2.

FIG. 3.

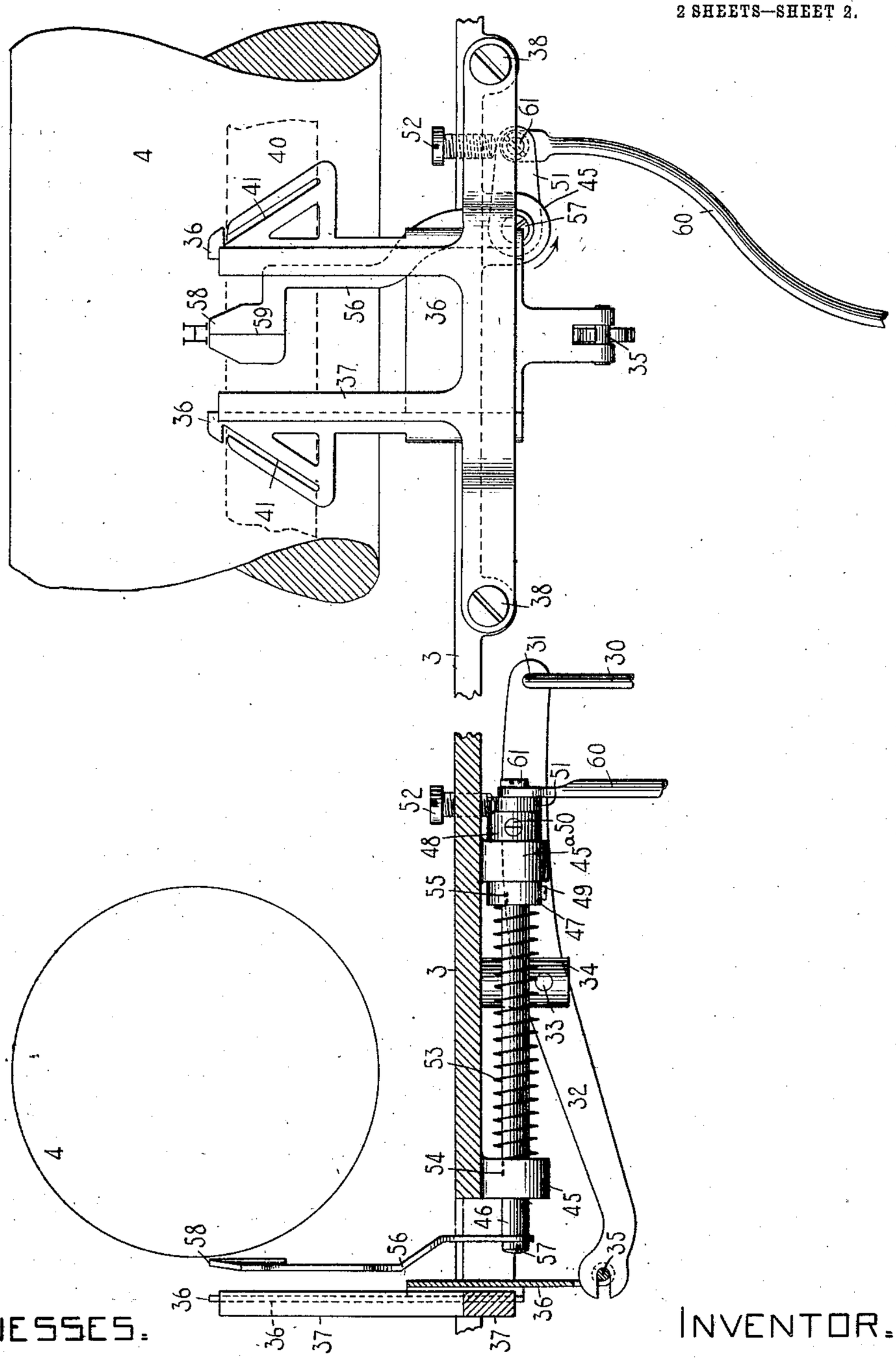

FIG. 2.

WITNESSES:

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UNITED STATES PATENT OFFICE.

FRANK A. YOUNG, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE MONARCH TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

No. 865,744. Specification of Letters Patent. Patented Sept. 10, 1907.

Application filed July 6, 1905. Serial No. 268,507.

To all whom it may concern:

Be it known that I, FRANK A. YOUNG, a citizen of the United States, and a 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 printing point indicators and more particularly to printing point indicators for "visible" writing machines.

The object of my invention is to provide simple and efficient printing point indicating mechanism which is automatically operated at each printing operation.

To the above and other ends which will hereinafter appear my invention consists in the features of construction, arrangements of parts and combinations of devices to be hereinafter described and claimed.

In the accompanying drawings wherein like reference characters represent corresponding parts in the various views, Figure 1 is a central, vertical, front to rear sectional view of one form of typewriting machine embodying my invention. Fig. 2 is an enlarged detail vertical front to rear sectional view showing a portion of the indicating mechanism and the associated parts, and Fig. 3 is a front elevation of the same.

I have shown my invention applied to a Monarch machine though it should be understood that it may be applied to other forms of typewriting machines.

The frame of the machine comprises a base 1, corner posts 2 and a top plate 3. A suitable carriage (not shown) is mounted on the top plate to travel from end to end of the machine and a platen 4, diagrammatically shown, is carried by the carriage. Key levers 5 are fulcrumed on a fulcrum plate 6 carried by the base of the machine. Each key lever has the usual key 7 and restoring spring 8, and a sub-lever 9 is pivoted to each key lever at 10, the lower end of the sub-lever being slotted at 11 for coöperation with a fixed fulcrum rod 12 that extends from side to side of the machine beneath the various key levers. The upper end of each sub-lever is pivoted at 13 to a link 14, which in turn is pivoted at its forward end 15 to a type bar 16, the various type bars being pivoted on a pivot wire 17 seated in a segment 18, the type bars working in guide slots 19 in the segment. The type bars are segmentally arranged to strike upwardly and rearwardly against the platen 4. A universal bar 20 extends beneath the various key levers and is carried by a universal bar frame 21 pivoted at 22 in the base 1 of the machine frame. The frame 21 for the universal bar has a rearwardly directed, centrally located arm 23 projecting therefrom and connected to and extending upwardly from this arm is a link 24 connected at its upper end to a forwardly extending arm 25 of a dog rocker 26 that projects from a rock shaft 27 pivoted in a fixed part of the machine. The feed dogs 28 coöperate with a suitable feed rack 29 carried by the carriage. Another link 30 is connected to and extends upwardly from the arm 23 and is connected at its upper end 31 to the rear end of a ribbon vibrator actuating lever 32 pivoted at 33 to a depending stud 34 that projects from the top plate. The forward end of the lever 32 is connected at 35 to a ribbon vibrator 36 that receives a vertical movement and is guided by a fixed guide 37 secured by screws 38 to the top plate. Two ribbon spools 39 are mounted on the top plate and the ribbon 40 passes from one ribbon spool to the other through guide slots 41 in the vibrator in the usual manner. The ribbon spools may be turned through the bevel gears 42, 43 and shaft 44 from the carriage drum (not shown) in the usual manner. The features thus far described constitute parts of the Monarch machine and it will be understood that each depression of a key lever causes the ribbon to be elevated or moved laterally, in the usual manner, by the vibrator into the path of the type as it approaches the platen and the vibrator is lowered to expose the last written character as pressure on the finger key is released.

Depending lugs 45 and 45ª extend from the top plate and are perforated to form bearings for a rock shaft 46 which extends fore and aft of the machine and to one side of the vibrator lever 32. Two collars 47 and 48 are secured to the shaft 46 by screws 49 and 50 respectively, one collar being located on each side of the lug 45ª to prevent a longitudinal movement of the shaft in its bearings. The rear end of the rock shaft has a crank arm 51 secured thereto and this arm is adapted to abut in its upward movement against the lower end of a screw 52 that is threaded into an opening in the top plate, so that the screw constitutes an adjustable stop to limit the upward movement of the crank arm and to limit the turning movement of the shaft in one direction. A coiled spring 53 surrounds the rock shaft and is connected at one end 54 to the lug 45, whereas the opposite end 55 of the spring is secured to the collar 47. This spring exerts a pressure to turn the shaft in the direction of the arrow in Fig. 3 and tends to maintain the crank arm 51 in contact with its stop 52. The forward end of the shaft 46 has a printing point indicator 56 secured thereto by suitable means, such as a headed screw 57, the stem of which passes through a hole in the lower end of the indicator and takes into a threaded opening in the end of the shaft. The indicator may be made of sheet metal and formed as indicated in Figs. 2 and 3. The pointer portion of the indicator is preferably flat on top, as indicated at 58, and is substantially the width of an upper case letter. A vertical groove or line 59 is provided on the front face of the indicator and this represents the exact vertical center of a letter imprinted at the printing point. The upper end of a link 60 is pivoted at 61 to the crank arm 51,

whereas the lower end of this link is detachably pivoted at 62 to the arm 23. A leaf spring 63 is secured at one end 64 to the universal bar frame, or the arm 23, which forms a part thereof, and the opposite end of the spring is perforated to receive the pivot 62 and thus prevent the accidental detachment of the link from the arm 23. The link 60 is preferably a two-part link, the upper member of which is threaded at its lower end, as at 65, for coöperation with an internally threaded lower member 66 so that the two members may receive a relative adjustment to effect a lengthening or shortening of the link.

The indicator stands and moves between the ribbon vibrator and the platen and normally the ribbon is in the lowermost position to expose the writing and the indicator is normally in the position shown in Fig. 3 where it accurately indicates the printing point or the character at the printing point. When a key lever is depressed the vibrator will be moved to one side, around the rock-shaft 46 as a center, as the ribbon is being moved into the path of the type which is approaching the platen. When pressure on the finger key is released the universal bar is elevated and the spring 53 forces the indicator and the parts connected thereto to their normal positions and the indicator will be brought to the position shown in Fig. 3 when the crank arm 51 is brought into contact with the stop 52. The adjustment of the stop 52 nicely determines the normal position of the indicator and the adjustment of the member of the link 60 compensates for any adjustment of the stop, so that the indicating mechanism may be nicely regulated to accurately indicate the printing point, irrespective of any changes or adjustment that may be given the universal bar or the key levers.

It will be seen that I have provided simple, cheap and efficient printing point indicating mechanism that may be applied to existing forms of typewriting machines without altering the structural features of said machines and that the device occupies but little room and does not interfere with or modify the operation of the ribbon mechanism or ribbon vibrator and the means for actuating it.

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

1. In a typewriting machine, the combination of means for vibrating the ribbon to and from the printing point, a printing point indicator which is normally in the indicating position, adjustable means for determining the normal position of the indicator, a rock shaft with which said indicator is connected, and means for automatically turning the rock shaft when said ribbon vibrating means are actuated.

2. In a typewriting machine, the combination of means for vibrating the ribbon to and from the printing point, a printing point indicator which is normally in the indicating position, adjustable means for determining the normal position of the indicator, a spring restored rock shaft to which said indicator is secured, a crank arm on said shaft, and means connected to said crank arm for automatically turning the rock shaft against the tension of its spring when said ribbon vibrating means are actuated.

3. In a typewriting machine, the combination of means for vibrating the ribbon to and from the printing point, a printing point indicator which is normally in the indicating position, means for automatically moving said indicator from and to the indicating position at each operation of said ribbon vibrating means, and adjustable means for determining the extent of throw of the indicator.

4. In a typewriting machine, the combination of means for vibrating the ribbon to and from the printing point, a printing point indicator which is normally in the indicating position, means for automatically moving said indicator from and to the indicating position at each operation of said ribbon vibrating means, and a set screw associated with said indicator moving means and with a fixed portion of the machine for determining the extent of throw of the indicator towards the normal position.

5. In a typewriting machine, the combination of means for vibrating the ribbon to and from the printing point, a printing point indicator which is normally in the indicating position, a spring-restored rock shaft with which said indicator is connected, means for turning said rock shaft when said ribbon vibrating means are actuated, and a set screw for limiting the turning movement of the rock shaft.

6. In a typewriting machine, the combination of means for vibrating the ribbon to and from the printing point, a printing point indicator which is normally in the indicating position, a rock shaft to which said indicator is secured, a crank arm on said shaft, means for automatically turning the rock shaft when said ribbon vibrating means are actuated, and a set screw coöperating with said crank arm and with a relatively fixed portion of the machine for limiting the turning movement of the rock shaft in one direction and to regulate the normal position of the pointer.

7. In a typewriting machine, the combination of carriage feed devices, a ribbon vibrator, operative connections between said carriage feed devices and said vibrator, a printing point indicator, and independent operative connections between said indicator and said carriage feed devices.

8. In a typewriting machine, the combination of a universal bar, a ribbon vibrator, connections between said ribbon vibrator and universal bar, a printing point indicator, and independent connections between said indicator and universal bar.

9. In a typewriting machine, the combination of carriage feed devices, a ribbon vibrator, operative connections between said carriage feed devices and said vibrator, a printing point indicator, independent operative connections between said indicator and said carriage feed devices, and means for adjusting the connections between the indicator and the carriage feed devices.

10. In a typewriting machine, the combination of a universal bar, a ribbon vibrator, connections between said ribbon vibrator and universal bar, a printing point indicator, independent connections between said indicator and universal bar, and means for adjusting the connections between the indicator and universal bar.

11. In a typewriting machine, the combination of a universal bar, a printing point indicator, a rock shaft with which said indicator is connected, connections from said universal bar to the rock shaft, and adjustable means for regulating the normal position of the indicator, the construction and arrangement of the parts being such that the normal position of the indicator may be varied without affecting the universal bar or the operation thereof.

12. In a typewriting machine, the combination of a universal bar, a printing point indicator, a rock shaft with which said indicator is connected, connections from said universal bar to the rock shaft, an adjustable stop for regulating the normal position of the indicator, and adjustable means in the connections from the universal bar to the rock shaft.

13. In a typewriting machine, the combination of a universal bar, a printing point indicator, connections from the universal bar to the indicator, and means for affording an adjustment of said connections, the construction and arrangement of the parts being such that the normal position of the indicator may be varied without affecting the universal bar or the operation thereof.

14. In a typewriting machine, the combination of a universal bar, a printing point indicator, connections from the universal bar to the indicator, and an adjustable stop to regulate the normal position of the indicator, the construction and arrangement of the parts being such that the normal position of the indicator may be varied without affecting the universal bar or the operation thereof.

15. In a typewriting machine, the combination of a universal bar, a ribbon vibrator, connections from said universal bar to said ribbon vibrator, a rock shaft, a printing point indicator secured to said rock shaft, and connections independent of the ribbon vibrator connections from said rock shaft to said universal bar.

16. In a typewriting machine, the combination of a universal bar, a ribbon vibrator, an actuating lever for said ribbon vibrator, a link between said universal bar and said lever, a printing point indicator, a rock shaft to which said indicator is secured, and a link between said universal bar and rock shaft.

17. In a typewriting machine, the combination of a universal bar, a ribbon vibrator, an actuating lever for said ribbon vibrator, a link between said universal bar and said lever, a printing point indicator, means for limiting the movement of the indicator to the normal position, a spring restored rock shaft to which said indicator is secured, and a two-part adjustable link between said universal bar and rock shaft.

18. In a typewriting machine, the combination of a universal bar, a pivoted frame to which said universal bar is connected, a ribbon vibrator, an actuating lever therefor, a link between the universal bar frame and said actuating lever, a printing point indicator that is normally in the indicating position and is automatically moved from such position when the ribbon vibrator is actuated, a spring restored rock shaft to which said indicator is secured, a crank arm on said rock shaft, a set screw with which said crank arm coöperates to limit the indicator in its movement to the normal position, and a two-par adjustable link between said crank arm and the universal bar frame.

19. In a typewriting machine, the combination of a printing point indicator normally in the indicating position and having a flat indicating end substantially the width of one of the widest characters to be printed on the machine, and means for automatically moving said indicator to the non-indicating position at each printing operation.

20. In a typewriting machine, the combination of a printing point indicator normally in the indicating position and having a flat indicating end substantially the width of one of the widest characters to be printed on the machine, means on the indicator for indicating substantially the line where the center of the character to be printed would appear, and means for automatically moving said indicator to the non-indicating position at each printing operation.

21. In a typewriting machine, the combination of a printing point indicator normally in the indicating position and having a flat indicating end substantially the width of one of the widest characters to be printed on the machine, an indicating line on the indicator and which alines with the center of a character imprinted at the printing point, and means for automatically moving said indicator to the non-indicating position at each printing operation.

Signed at Syracuse, in the county of Onondaga, and State of New York, this 30th day of June A. D. 1905.

FRANK A. YOUNG.

Witnesses:
HARRY W. WARD,
W. J. LOGAN.