

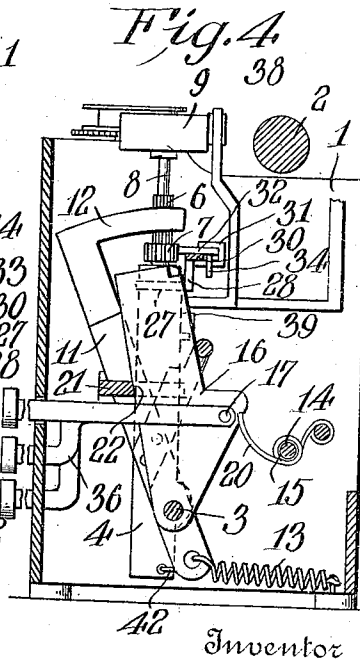
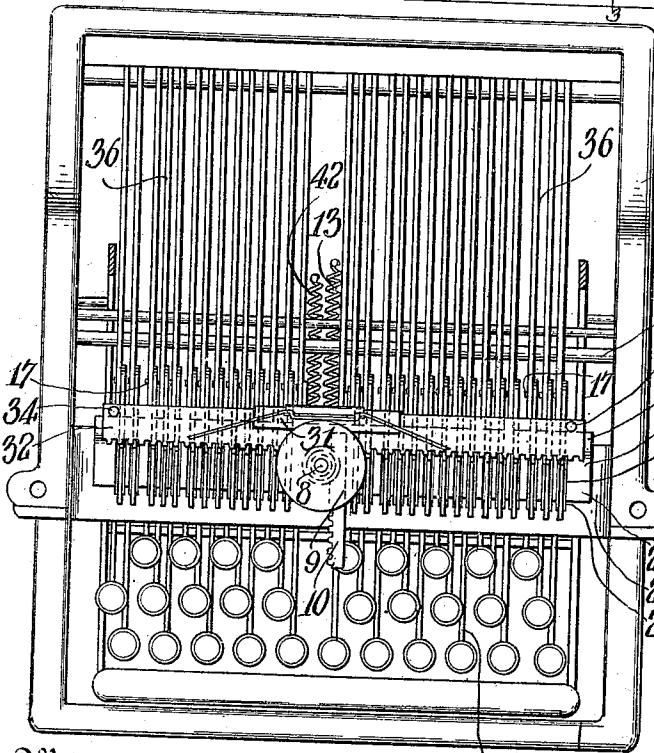
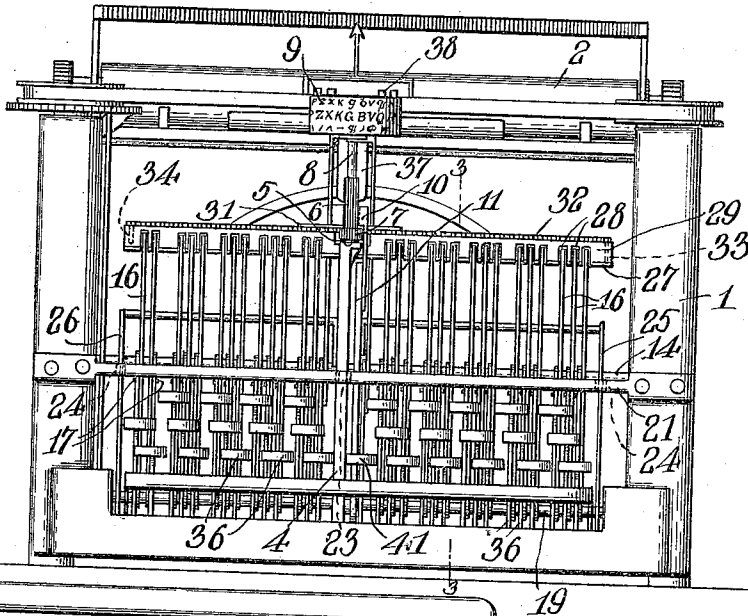
J. W. MILLER, SR.
KEY WHEEL TYPE WRITER.
APPLICATION FILED DEC. 14, 1908.

941,026.

Patented Nov. 23, 1909.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses
E. Crocker
C. H. Griesbauer

Fig. 2.

By

J. W. Miller, Sr.

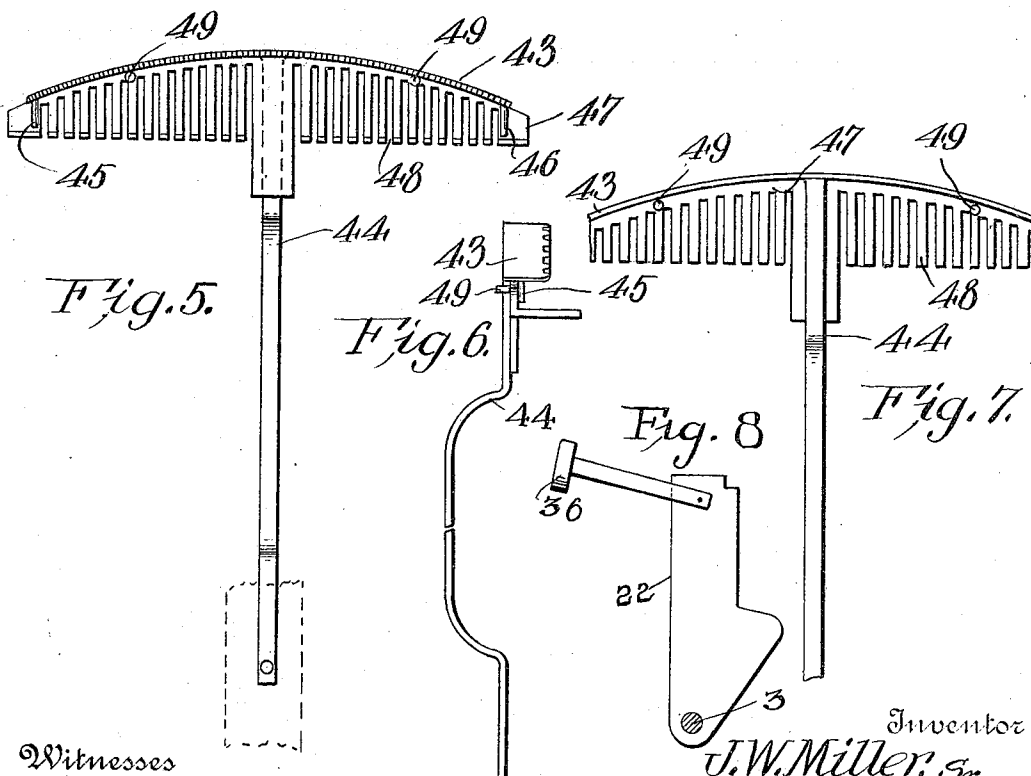
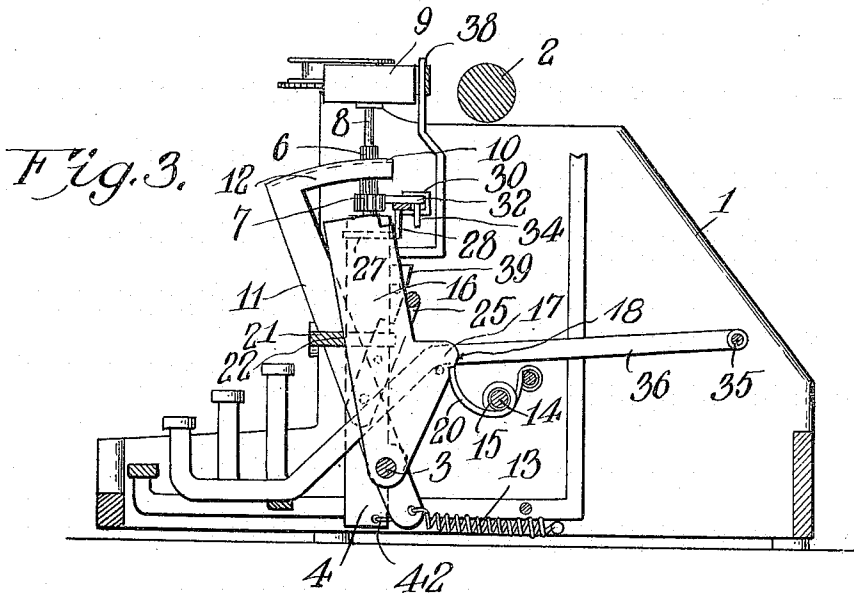
A. Blaisson & Co

Attorneys

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Witnesses
E. Crocker.
C. H. Griesbauer.

Inventor
J. W. Miller, Sr.
By *H. B. Wilson & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

JOSEPH WARREN MILLER, SR., OF HARRISBURG, PENNSYLVANIA.

KEY-WHEEL TYPE-WRITER.

941,026.

Specification of Letters Patent.

Patented Nov. 23, 1909.

Application filed December 14, 1908. Serial No. 467,402.

To all whom it may concern:

Be it known that I, JOSEPH W. MILLER, Sr., a citizen of the United States, residing at Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Key-Wheel Type-Writers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in key wheel typewriters and contemplates the construction of a mechanism for producing accurate and clean typewritten figures.

One of the objects of the invention is the production of a typewriter having a printing wheel with means for turning the printing wheel and lever actuated means for stopping the printing wheel so that different types may be automatically brought into a printing position.

Another object of the invention is the construction of a key wheel typewriter having gear actuating mechanism and a rack movable by said mechanism provided with stop means arranged to engage the key levers for limiting the movement of the key wheel so that the different types carried thereon may be brought into printing position.

Another object of the invention is the production of a key wheel typewriter mechanism having a simple stop movement and so arranged that the type wheel will not obscure the impressed characters and the type will remain in positive alinement.

The further object of the invention is the production of a visible key wheel typewriter provided with key levers arranged to be pressed horizontally.

A still further object of the invention is the production of a compact and visible key wheel typewriter capable of giving a high class service and of being manufactured at small cost.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a front elevation of my improved typewriter mechanism; Fig. 2 is a plan view thereof; Fig. 3 is a vertical sectional view

thereof; Fig. 4 is a similar view of a modification; Fig. 5 is a front elevation of a modified stop device, and guide therefor; Fig. 6 is an end elevation thereof; and Fig. 7 is a rear elevation. Fig. 8 is a detail view of one of the operating levers.

In the accompanying drawings, which are prepared for illustrative purposes only and therefore not drawn to scale, numeral 1 designates a type writer frame and 2 a platen which may be of any preferred type.

A rod 3 extends across the frame 1 and a vertical bar 4 is pivotally supported on said rod. The upper end of the bar 4 is provided with a vertical shaft 5 and a gear 6 is journaled on said shaft. The gear 6 is provided at its lower end with a pinion 7 and is formed at its upper end with a stem 8 which is adapted to carry a key wheel 9. A segment 10 having a slight bow formed therein and supported by a vertical bar 11 having an extension 12 is adapted to engage with the gear 6, the teeth of which are of sufficient width to allow the gear wheel to be lifted without bringing said gear out of engagement with the segment 10. The vertical bar 11 is pivotally supported on the horizontal rod 3 and is engaged at its lower end by a spring 13 which has one of its ends secured to the frame 1. A second rod 14 crosses the frame 1 rearwardly of the rod 3 and is formed with a plurality of concentric grooves 15 which are adapted to receive the ends of lever springs.

A plurality of vertically disposed levers 1 are pivotally supported on the rod 3 and each of said levers is formed with a lateral pin 17 and an extension 18 which projects rearwardly on the frame 1. The levers 16 are spaced apart by sleeves 19 which embrace the rod 3 and the extensions 18 of said levers are engaged by springs 20 which are secured in the concentric grooves 15 of the horizontally disposed rod 14. The ends of the springs 20 may be secured on the rod 14 or secured on a separate rod which may be arranged adjacently and parallel with the rod 14 on the frame 1. A guide plate 21 formed with openings 22 for the reception of the levers 16 extends across the frame 1 and serves to guide said levers in their movements. The guide plate 21 is formed with a central cut-away portion 23 for the reception of the key supporting vertical bar 4, and is further slotted on its outer ends at 24 for the reception of arms 25 and

26 which are adapted to turn the key wheel 9. The upper end of the key carrying bar 4 is provided with a guide plate 27 which is formed with lever receiving slots 28 and a vertical flange 29 through which the upper ends of the levers are arranged to project and is further formed with a horizontal flange 30 which is provided with a guide way 31 in which a rack 32 is adapted to slidably move. The rack 32 is provided with downwardly projecting pins 33 and 34 which are arranged on opposite ends of said rack. The rack 32 is held in engagement with the pinion 7 by means of the guide way 31 and the downwardly projecting pins 33 and 34 are adapted to abut against the upper rear corners of the levers 16 when said levers are moved inwardly and beyond the vertical flange 29 of the guide plate 27.

A third horizontally disposed bar 35 crosses the frame 1 rearwardly of the bar 14 and pivotally supports the horizontally and forwardly extending key levers 36 and the middle body portion of said key levers are adapted to rest on the lateral pins 17 formed on the extensions 18 of the levers 16. The levers 36 are spaced apart on the bar 35 by suitable notches formed in said bar or by sleeves carried thereon.

The arms 25 and 26 are arranged on opposite sides of the key wheel supporting bar 4 and arm 25 is rigidly secured on the segment supporting arm 11 and is pivoted on the horizontal rod 3. The arm 26 has one of its ends rigidly secured to the key wheel supporting bar 4 and its opposite end pivoted on the horizontal rod 3. The arm 25 is adapted to be engaged by the right set of key levers and the arm 26 is adapted to be engaged by the left set of key levers. When any one of the right set of key levers is actuated, the arm 25 will be moved or swung rearwardly and the segment 10 will engage with the gear 6 thereby turning the key wheel 9 on the shaft 5. When one of the key levers 36 is actuated, the upper end of one of the levers 16 will move rearwardly of the flange 29 of the upper guide plate 27 and simultaneously with the inward movement of the upper end of one of the levers 16, the rack 32 will move laterally on the flange 30 and in the guide way 31 formed on the guide plate 27 so that the right projecting pin 33 will engage with the upper end of one of the levers 16 and thereby prevent the key wheel 9 from further movement on the shaft 5 and consequently bringing one of the type of said key wheel into printing position. When one of the left set of key levers 36 is depressed, the key wheel supporting bar 4 will be moved inwardly by the upper end of one of the levers 16 engaging the arm 26, while the segment carrying arm 11 will remain in a practical stationary position. As the key wheel supporting bar

swings inwardly the key wheel, 9, is rotated by the engagement of the gear, 6, with the teeth of the extension, 12, of the segment carrying frame, while the rack, 32, will be shifted laterally by the rotation of the pinion, 7, bringing the pinion, 34, into engagement with the depressed key lever and thus holding the key wheel against further rotation and in the proper position for printing. When one of the right-hand set of key levers is depressed, and after the rotation of the key wheel has been stopped as above described, the vertical bar, 4, carrying the key wheel, is swung against the platen by the segment carrying arm, 11.

A ribbon guide 37, provided at its upper end with a plurality of spaced upright forks 48, has its lower end mounted or fitting in a socket 39, at the rear edge of the key wheel supporting bar 4, and is movable with said bar. The stem 8 may be provided with a suitable spanner for shifting the key wheel 9 into different positions so that capitals or figures may be, respectively, brought into position when the same is desired. The lower end of the key wheel supporting bar 4 is engaged by a rearwardly extending spring 42 which has its rear end secured to the frame 1.

In Fig. 4, I have illustrated a modification of my typewriter mechanism comprising the construction of a machine in which the levers 36 are cut off at the point where they connect with the pins 17 and the levers 16 are provided with the usual finger engaging buttons. In this modified form of my invention, the operation of the machine is practically the same as previously described excepting that the various types of key wheel line are brought into printing position by horizontal movement instead of by vertical movement, pressure being applied horizontally to the front edges of the levers 16. This arrangement enables the production of a very compact and inexpensive machine, the width of the machine being about one-half the width of the machine provided with the key levers 36.

In Figs. 5 and 6, I have illustrated another modification of my invention comprising the construction of a bowed stop rack 43 which is carried upon a bowed swinging arm 44, said arm being secured at its lower end to the key wheel supporting bar 4. The bowed rack 43 carries on its outer ends stop pins 45 and 46 and is movable on the guide plate 47. The guide plate 47 is provided with a series of slots 48 and a pair of rearwardly projecting stop pins 49 which are spaced apart on said guide plate and are adapted to limit the lateral movement of the bowed segment supporting arm 44. The stop pins 45 and 46 are adapted to contact with the front face of the guide plate 47 and said plate is curved on its upper edge so as

to permit a free swinging movement of the segment 43. In order to limit the stroke of the left set of the levers 16, said levers are notched at their upper rear portions so that they may quickly come into engagement with the swinging arm 26.

The segment 32 is adapted to be removed from the guide plate 27 by removably securing one of the stop pins thereto. When it is desired to remove the segment from the guide plate, the removable pin is removed from the segment and said segment may then be released from the guide plate.

In the accompanying drawings, I have illustrated a machine provided with a few levers, a complete machine would simply involve multiplying the number of levers and a light modification in the proportions and relations of the levers toward each other and toward the swinging segment 10. The operation of my improved machine will be directly understood from the accompanying drawings taken in connection with the foregoing description. When one of the levers 36 on the right side of the machine is depressed, the printing wheel 9 is turned to a proper printing position corresponding to the function of the particular lever depressed and the sliding or swinging segment or rack brings the stop pin on the right side of said rack or segment into engagement with the upper portion of the lever 16 which is moved and thereby preventing the wheel 9 from further movement on the shaft 5. When the guide lever is released, the springs 13 and 42 will return the key wheel supporting bar 4 and the swinging segment supporting arm 11 to their normal positions. The key wheel supporting bar 4 and the swinging segment supporting arm 11 are adapted to engage at their lower ends a rearwardly positioned stop block 49 which prevents the forward movement of the key wheel and the segment 10 beyond a certain point.

Various changes in the form, proportions and the minor details of construction can be resorted to without departing from the principle or sacrificing any of the advantages of

this invention as defined in the appended claims.

Having thus described and ascertained the nature of my invention, what I claim as new and desire to secure by Letters-Patent is:

1. In a typewriter mechanism, a supporting frame, a cross rod rigidly mounted therein, a vertically disposed swinging bar mounted upon said cross rod, a rotatable key wheel mounted at the upper end of said bar, a gear on the key wheel shaft, a vertically disposed segment carrying bar mounted upon said cross rod and having a toothed segment at its upper end to engage said gear, said bar being adapted to rotate the key wheel shaft and to swing the key wheel into engagement with the platen, a series of vertically disposed levers mounted on said cross rod, a pinion on the key wheel shaft, and a horizontal sliding rack bar having teeth to engage the pinion and provided with means for engaging any one of the series of vertically disposed levers when actuated to stop the rotation of the key wheel at a point corresponding to the key lever which is depressed.

2. A typewriter mechanism comprising a frame, a cross rod extending across the frame, a vertically disposed swinging bar mounted thereon, a rotary key wheel mounted upon the upper end of said bar, a vertically disposed lever having a lateral pin mounted upon the cross rod near said swinging bar, a key lever pivoted in the frame in the rear of the cross rod with a portion thereof resting upon the pin of the vertically disposed lever, and a connection between the swinging bar and lever whereby the former is caused to swing inwardly and bring the key wheel against the platen when the vertically disposed lever is actuated by depressing the key lever.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOSEPH WARREN MILLER, SENIOR.

Witnesses:

H. H. FREEBURN,
WILLIAM C. ARMOR.