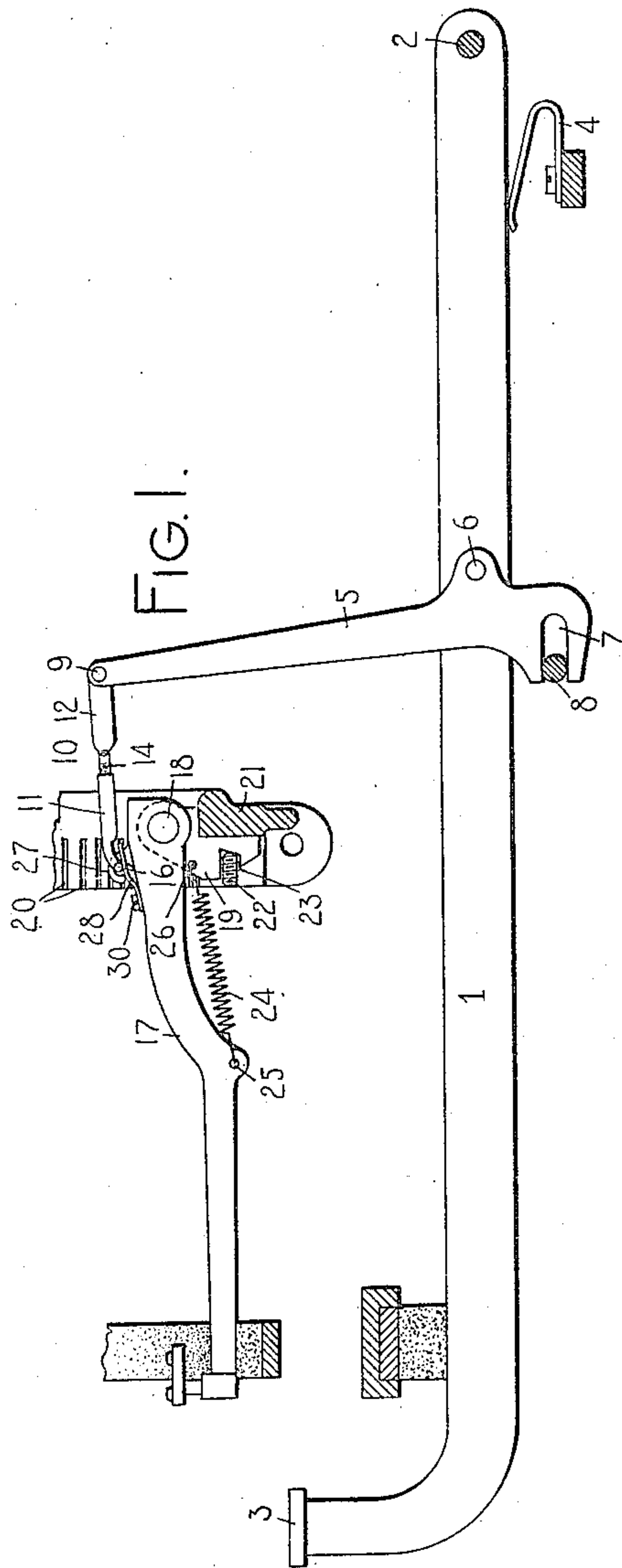
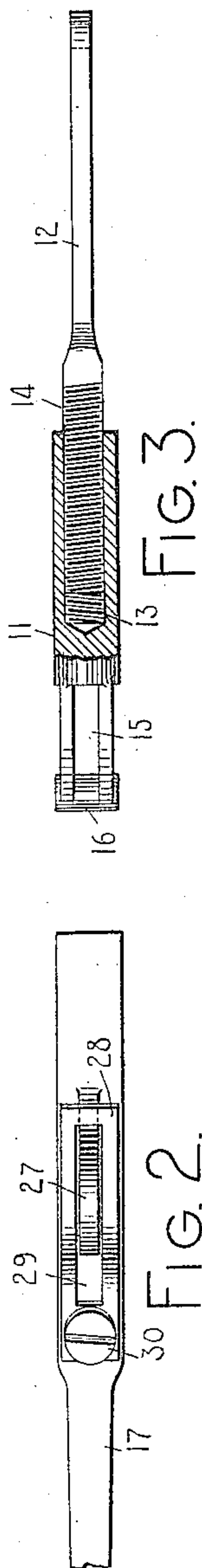


No. 875,032.

PATENTED DEC. 31, 1907.

W. B. WOODHOUSE.  
TYPE WRITING MACHINE.  
APPLICATION FILED MAR. 11, 1904.



WITNESSES.

*K. V. Donovan.*  
*Charles Smith*

INVENTOR.

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# UNITED STATES PATENT OFFICE.

WILLIAM BURGESS WOODHOUSE, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE MONARCH TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

## TYPE-WRITING MACHINE.

No. 875,032.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed March 11, 1904. Serial No. 197,662.

*To all whom it may concern:*

Be it known that WILLIAM BURGESS WOODHOUSE, 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 the type actions thereof, and the principal object of said invention is to provide means whereby the type bar may be readily attached to and detached from its actuating means.

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 particularly pointed out in the appended claims.

In the accompanying drawings, wherein like reference characters designate like parts in the various views, Figure 1 is a side elevation, partly in section, of sufficient number of parts of a typewriting machine illustrating my invention. Fig. 2 is an enlarged detail plan view of the heel or pivotal end of a type bar embodying my invention. Fig. 3 is a plan view, partly in section, of an actuating link, also forming part of my invention.

While I have illustrated my invention in its application to a Monarch typewriting machine, it will be understood that the invention may be applied to other kinds or constructions of writing machines.

The key levers 1 are pivoted at 2 and are each provided with a key 3 and a restoring spring 4. Each key lever has a sub-lever 5 pivoted thereto at 6 and the lower end portion of each sub-lever is slotted at 7 for the reception of a fixed fulcrum bar 8. The upper end of each sub-lever is pivoted at 9 to a forwardly extending actuating link 10. Each actuating link comprises two members 11 and 12, the former being internally threaded at 13 and the latter externally threaded at 14, so as to form cooperating threaded portions by means of which the members may be turned relatively one to the other and an adjustment afforded to provide for lengthening or shortening the link. The socketed member 11 has a looped portion 15 that terminates in a round or cylindrical portion 16 and which constitutes

a pivot for connection with a type bar 17. Each type bar is pivoted at 18 to a hanger 19 so as to swing upwardly and rearwardly to the printing position. The hangers are detachably secured in slots 20 in a type bar segment 21 by means of screws 22, each of said screws being seated in a threaded opening in the segment and projecting into a recess 23 in its associated hanger, as represented in Fig. 1. A partial withdrawal of each screw 23 will free the rear end thereof from the recess 23 in the hanger and will permit the removal of the hanger from its slot 20 in the segment. Each type bar has a restoring spring 24 connected at one end 25 to a type bar and at its opposite end 26 to a hanger, so that each type bar, its hanger and restoring spring 24 may be removed as an entirety.

A hook 27 is formed on the upper edge of the type bar and opens forwardly with the plane of the hook in the plane of movement of the type bar, as represented in Fig. 1. In other words, the bill of the hook extends from its stem towards the free end of the type-bar. This hook is straddled by the loop portion 15 of the actuating link and the pivot portion 16 on the link is received within or embraced by the hook. The hook is located forward of the pivot of the type bar or between the type bar pivot and the type at the free end of the type bar and the actuating link is arranged substantially parallel with or in the same general direction as the type bar. A leaf spring 28 is slotted at 29 so as to straddle the hook and one end of the spring (preferably the forward end) is secured to the type bar by a screw 30 or by any other suitable means. From an examination of Fig. 1 it will be seen that when a link is connected to its associated type bar the spring 28 will retain the link against accidental detachment from the hook. When, however, it is desired to disconnect the link from its type bar, it is merely necessary to depress the forward end of the link, (thus forcing down the free portion of the spring 28 against its tension) and then partially raise the type bar until the throat of the hook passes over or beyond the pivot 16. The type bar, hanger and restoring spring may then be removed from the machine as an entirety, when the associated retaining screw 22 is partly withdrawn, as hereinbefore described.



It will be understood that the hook 27 and its spring 28 constitute a snap-hook which affords a ready means of connection and disconnection between the type bar and its actuating link, and that owing to the position of the spring and the bend therein there is no liability of the link becoming accidentally disconnected from the type bar in the actuation of the latter to print.

To connect the link to the type bar, the link is held with one hand in about a horizontal position and the type bar is swung up by the other hand until the mouth of the hook registers with the pivot 16 of the link; then the pivot is passed through the throat of the hook, depressing the spring in such passage until the pivot is caught within the hook, and then the type bar is swung back to normal position, shown at Fig. 1.

While I have shown but a single type action it will be understood that a full complement of segmentally arranged upwardly and rearwardly striking type bars are provided and that each type bar has an associated actuating link that extends fore and aft of the machine, a sub-lever and key-lever, all connected in the manner shown.

Certain features of construction herein shown and not claimed, constitute no part of my present invention but are the invention of Henry W. Merritt.

Various changes may be made without departing from the spirit of my invention. For example, the type bar actuating means may be different from that shown; likewise the construction of the type bar and hanger and its pivot joint.

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

1. In a typewriting machine, the combination of a type bar having an engaging hook, the plane of which is in the plane of movement of the type bar, an actuating connection adapted to engage and be disengaged from said hook, and a spring for preventing the accidental disengagement of the actuating connection from said hook.

2. In a typewriting machine, the combination of a type bar having a snap-hook thereon, the plane of the hook being in the plane of movement of the type bar, and an actuating connection adapted to engage and to be disengaged from said snap-hook.

3. In a front strike typewriting machine, the combination of an upwardly and rearwardly swinging type bar, a hook that is carried by said bar and opens forwardly, and an actuating link that extends fore and aft of the machine and engages said hook and is adapted to be disengaged therefrom.

4. In a front-strike typewriting machine, the combination of an upwardly and rearwardly swinging type bar, a hook that is carried by said bar and opens forwardly, an actuating link that extends fore and aft of

the machine and engages said hook and is adapted to be disengaged therefrom, and a spring for preventing the accidental disengagement of the link from said hook.

5. In a front-strike typewriting machine, the combination of a type bar that swings upwardly and rearwardly to the printing position, a hook formed on said bar at the upper edge thereof and which opens forwardly, an actuating link that straddles and engages said hook and which moves fore and aft of the machine, and a spring carried by the type bar and adapted to bear against the link to prevent an accidental disengagement of the link from the hook.

6. In a front-strike typewriting machine, the combination of a type bar that swings upwardly and rearwardly to the printing position, a hook formed on said bar at the upper edge thereof, an actuating link that engages said hook, and a slotted spring which straddles the hook and prevents the accidental disengagement of the link therefrom.

7. In a typewriting machine, the combination of a type bar, a hook thereon, the bill of the hook extending towards the free end of the type bar, an actuating link engaging said hook, and a spring secured to the type bar and preventing the accidental disengagement of the link from the hook.

8. In a front strike typewriting machine the combination of an upwardly and rearwardly striking type bar, a key lever, a sub-lever controlled thereby and a two-part adjustable link between said sub-lever and type bar, and a hook that is carried by the type bar and opens forwardly for the ready attachment of the link to and detachment thereof from said type bar.

9. In a front strike typewriting machine, the combination of an upwardly and rearwardly striking type bar, an engaging hook thereon, a key lever, a sub-lever controlled thereby, and a two-part link having a threaded connection between the parts to lengthen or shorten the link, said link being connected at one end to said sub-lever and at the other end to the hook on the type bar, the bill of the hook extending forwardly from its stem, and a spring for preventing the accidental disengagement of the link from said hook.

10. In a typewriting machine, the combination of a type bar carrying a snap-hook, the bill of said hook extending from its stem towards the free end of the type bar, and a two-part actuating link having means to afford a lengthening or shortening of the link, and one end of which is provided with a loop to engage the snap-hook.

11. In a typewriting machine, the combination of a key lever, a sub-lever controlled thereby, a type bar having a snap-hook, the bill of the hook extending from its stem towards the free end of the type bar, and a two-



part actuating link having means to afford a lengthening or shortening of the link and to enable one member of the link to turn on the other, said link having a loop at one end to  
5 engage the snap-hook on the type bar and being pivotally connected at the other end to said sub-lever.

12. In a front-strike typewriting machine, the combination of an upwardly and rear-  
10 wardly swinging type bar, a hook thereon that opens forwardly, a two-part link that is detachably connected at one end to said hook and which moves fore and aft of the machine, a spring for preventing the accidental discon-  
15 nection of the link from said hook, a sub-lever pivotally connected to the other end of said link, and a key lever operatively connected to said sub-lever.

13. In a front-strike typewriting machine, the combination of an upwardly and rear-  
20 wardly swinging type bar, a hook formed thereon, the bill of said hook extending forwardly from its stem, a two-part link that is detachably connected at one end to said  
25 hook and which moves fore and aft of the machine, means for affording a lengthening or shortening of said link and a turning of one member on the other, a spring connected to the type bar for preventing the accidental  
30 disconnection of said link from said hook,

and a key lever operatively connected to the link.

14. In a typewriting machine, the combination of a sub-lever, a type bar, an intermediate link, a snap-hook on the type bar, 35 the bill of the hook extending towards the free end of the type bar for preventing an accidental disengagement of the link from the type bar and for affording a ready disconnection of said link from said type bar 40 when desired, and a key lever controlling said sub-lever.

15. In a typewriting machine, the combination of a type bar having a hook on its upper side and forward of the pivot thereof, and an 45 actuating link substantially parallel with the type bar and provided at its forward end with a pin or pivot to pass through the throat of the hook; the said link being adapted to be engaged with and disengaged from the hook by 50 special relative movements between the type bar and the link.

Signed at Syracuse, in the county of Onondaga and State of New York, this 9th day of March A. D. 1904.

WILLIAM BURGESS WOODHOUSE.

Witnesses:

PERCY RIDINGS.

CHAS. H. COOKE.