No. 788,984. PATENTED MAY 2, 1905.

F. A. YOUNG.

TYPE WRITING MACHINE.

APPLICATION FILED FEB. 3, 1904.

FIG. 3.

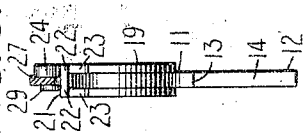


FIG. 4.

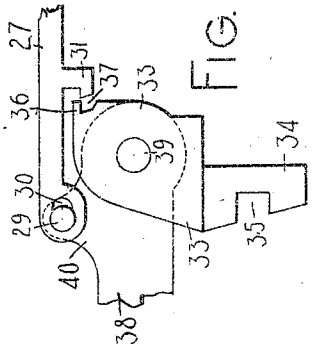


FIG. 1.

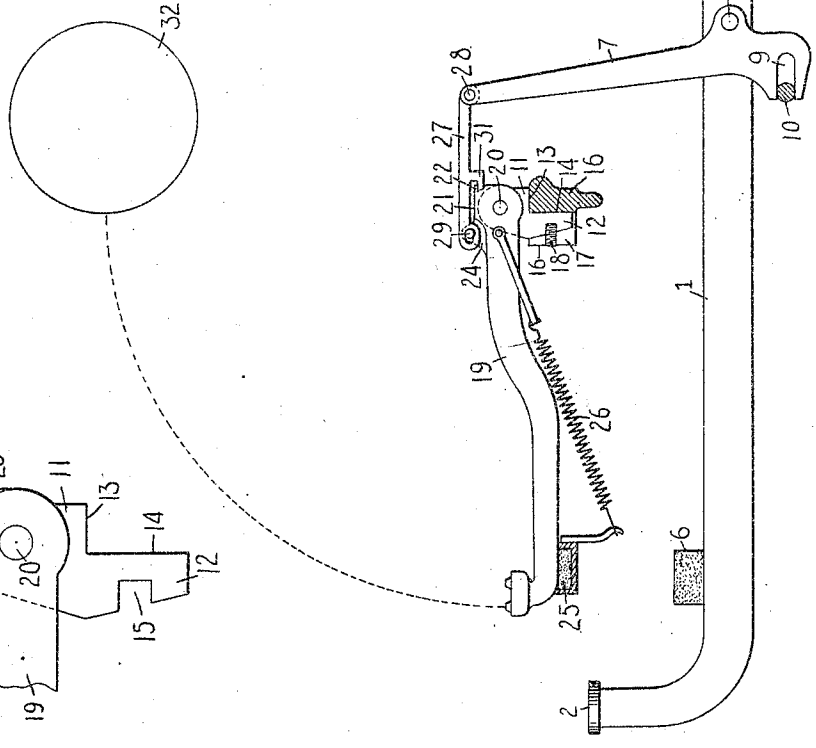


FIG. 2.

WITNESSES.

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No. 788,984. Patented May 2, 1905.

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.

SPECIFICATION forming part of Letters Patent No. 788,984, dated May 2, 1905.

Application filed February 3, 1904. Serial No. 191,777.

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 improvements in the type-actions of type-writing machines, especially those visible-writing machines which are known as "front-strike" machines, the general object of the invention being to prevent the type-bars from rebounding when they return to their normal positions.

The invention consists of various features of construction, combinations, and arrangements of parts, all to be hereinafter fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, wherein like reference-numerals designate like parts in the different views, Figure 1 is a side elevation of a type-action embodying the invention; Fig. 2, a side view, on an enlarged scale, of the type-bar hanger and fragments of the type-bar and actuating-link; Fig. 3, a rear and end view of the hanger and type-bar, respectively, and a cross-section of the link on the plane $x\,x$ of Fig. 2; and Fig. 4, a side view of another hanger with fragments of a type-bar and actuating-link.

The invention is shown applied to a type-action of a front-strike machine in which the type-bars are mounted on separately-detachable hangers secured to a common segmental support. It will be understood, however, that hangers of various forms may be used or that the type-bar may be mounted on a hanger integral with the common type-bar segment or support without materially affecting the invention.

The key-lever 1, having at its front end a finger-key 2, bears at its rear end on a fulcrum 3 and is normally held by a spring 4, attached to a cross-bar 5, against a fixed pad 6. The fulcrum 3, cross-bar 5, and pad 6 are secured in the base of the machine-frame, which is like that of well-known front-strike type-writing machines. On the key-lever an upright sublever 7 is pivoted by a pin 8. This sublever, which extends below the key-lever, has near its lower end a slot 9, by means of which the sublever engages with a rod 10, which is attached at its ends to the sides of the frame.

The particular hanger represented in Figs. 1, 2, and 3 is a flat piece of metal having the outline shown by full and dotted lines in those figures. The head 11 of the hanger forms with the stem 12 thereof a reëntrant right angle whose sides are the edge 13 of the head and the rear edge 14 of the stem. The stem contains a recess 15, extending into it from its front edge. The hanger-support 16, of which only a cross-section is shown, has substantially the form of the well-known segmental type-bar support of front-strike machines, its upper face being a concave cylindrical surface whose axis passes through or near the printing-point on the platen. The front portion of this support or segment 16 contains a series of slots which extend through it from top to bottom, the faces of each slot being parallel to a plane which is one of a series of planes that contain and radiate from the axis of the upper surface of the segment. The stem 12 of the hanger is confined in one of these slots 17, in which it fits snugly, the hanger being fastened by a screw 18 in its proper position, with its edges 13 and 14 in contact, respectively, with the upper face of the segment and the back of the slot. The screw 18 fits in a threaded hole in the front of the segment and is screwed tightly against the back of the recess 15 in the stem of the hanger. The head of the hanger is directly in front of the upper portion of the sublever 7.

The type-bar 19 covers the top and sides of the head of this hanger, a socket having flat faces, between which the head of the hanger fits, being milled in the type-bar. The pivot 20 of the type-bar extends through the walls of this socket and the head of the hanger, its ends being flush with the lateral faces of the

type-bar. The flat edge or top 21 of the socket, which covers the top of the head of the hanger when the type-bar is in its normal position, forms a catch 22 at the end of the type-bar, notches 23 being cut in the sides of the type-bar next to this catch. On the type-bar, close to the socket, is a lug 24, which is thinner than the socket. This lug may be formed by cutting away a portion of the type-bar blank with a milling-tool. The swinging or type end of the type-bar lies on a rest 25 when the parts of the type-action are in their normal positions. This rest is such as is usually attached to arms extending forward from the type-bar segment. A restoring-spring 26, connected with the type-bar, is secured at its front end to a hook or pin affixed to the rest 25.

Between the sublever 7 and the type-bar is an actuating device—such, for example, as the link 27. This link, which is pivoted at its rear end to the upper end of the sublever 7 by a pin 28, extends forward from the sublever to the lug 24 on the type-bar, the link being connected at its front end to the lug by a pin 29 passing through a slot 30 in the link. A hook or detent 31, formed on or affixed to this link, extends behind and under the catch 22 on the type-bar when the parts of the type-action are in their normal positions, the rear end of the slot 30 in the link then being close to the pin 29. The link 27 may be a thin unfolded strip of metal, or it may be divided at its front end and extend on both sides of the lug 24, each part having in it a slot 30 and being engaged thereby with the pin 29, and the hook 31 may be either thick enough to enter the notches 23 or thin enough to engage with the catch between the notches only.

The type-bar secured behind the lost-motion connection 29 30 to the link 27 by the detent 31, engaged with the catch 22, is locked in its normal position. for the front end of the type-bar is then prevented from moving toward the platen 32 by the downward action of the rear end of the link 27 on the sublever 7 and the downward action of the catch 22 on the detent 31 and on the link.

Other means besides the catch 22 and detent 31, operative on the link between the pin 29 and the rear end of the link, may be used to prevent the part of the link next to the end of the type-bar from being raised by the action of the type-bar on the link whether such means is also operative immediately on the type-bar or on the hanger or some other part of the machine.

The link may be locked to a hanger, as is shown, for example, by Fig. 4. The head 33 of the hanger of this figure forms a socket for the type-bar, the stem 34 being like the stem 12 of the other hanger and the relation of the stem to the head being such that the hanger may be attached to the segment 16 by inserting the stem in a slot 17 and securing it therein, with a screw 18 pressing against the back of the recess 35 in the stem. On the head 33 of this hanger is a catch 36, formed by cutting in the head a notch 37 like the notches 22 in the type-bar 19. The type-bar 38, which is pivoted by a pin 39 in the socket of this hanger, has on it a lug 40, to which an actuating-link 27 is connected by a pin 29 passing through the slot 30 in the link. When this link is pivoted at its rear end to a sublever 7 and the parts of the type-action are in their normal positions, the hook or detent 31 on the link extends behind and under the catch 36, and the type-bar is then locked.

When the finger-key 2 is depressed, the upper end of the sublever 7 is moved backward by the downward action of the pin 8 on the sublever and the action of the upper edge of the slot 9 on the rod 10. The link 27 is drawn backward by the sublever until the front end of the slot 30 is in contact with the pin 29, while the type-bar remains in its normal position. During this part of the movement of the link the detent 31 is withdrawn from the catch 22 or 36. The type-bar, which is then unlocked, as appears by Fig. 2, is thereafter actuated by the link acting on the pin 29 as it would on a common pivot. During the return of the type-bar to its normal position under the action of the spring 26 the pin 29 is at the front end of the slot 30, and immediately after the movement of the type-bar is arrested by the rest 25 the detent 31 engages with the catch 22 or 36, the link 27 continuing to move forward in consequence of the upward action of the spring 4 on the key-lever until the rear end of the slot 30 reaches the pin 29. By locking the type-bar as described at the instant when it arrives at its normal position after each action it is prevented from rebounding into the path of any other type-bar.

The mechanism herein described and claimed, it will be seen, comprises means whereby a type-bar is positively locked in its normal position however rapid the movement of the type-bar may be when it strikes the type-bar rest. The function of this locking mechanism therefore differs greatly from that of devices which retard the movement of a type-bar as it approaches its normal position by means of friction produced by the sliding action of one device on another.

Type-actions like that described herein can be assembled and adjusted and removed from and replaced on the supporting-segment without disturbing the relations between the counterparts of the locking mechanism, and they afford in addition to the special advantages of this invention all the well-known advantages which are derived from other type-actions provided with separately-detachable type-bar hangers.

Certain features of the invention may be

used without the others, and various changes may be made without departing from the spirit of the invention.

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

1. In a type-writing machine, the combination of a pivoted type-bar, key-operated mechanism comprising an actuating device, a connection between one end of said device and the type-bar, and means operative on said device between said connection and the other end of said device to positively lock the type-bar in its normal position.

2. In a type-writing machine, the combination of a pivoted type-bar, a key-operated actuating device, a connection between one end of said device and the type-bar, and means to positively lock said device to the type-bar between said connection and the other end of said device.

3. In a type-writing machine, the combination of a pivoted type-bar, key-operated mechanism comprising an actuating-link connected at one end with the type-bar by a pivot, and means operative on said link between said pivot and the other end of the link to positively lock the type-bar in its normal position.

4. In a type-writing machine, the combination of a pivoted type-bar, a key-operated actuating-link connected at one end with the type-bar by a pivot, and means to positively lock said link to the type-bar between said pivot and the other end of the link.

5. In a front-strike type-writing machine, the combination of a pivoted type-bar, key-operated mechanism comprising an actuating device extending forward from behind the type-bar, a connection between the type-bar and the front end of said device, and means operative on said device behind said connection to positively lock the type-bar in its normal position.

6. In a front-strike type-writing machine, the combination of a pivoted type-bar, a key-operated actuating device extending forward from behind the type-bar, a connection between the type-bar and the front end of said device, and means to positively lock said device to the type-bar behind said connection.

7. In a front-strike type-writing machine, the combination of a pivoted type-bar, key-operated mechanism comprising an actuating-link extending forward from behind the type-bar and pivoted at its front end to the type-bar, and means operative on said link behind the pivot at the front end of the link to positively lock the type-bar in its normal position.

8. In a front-strike type-writing machine, the combination of a pivoted type-bar, a key-operated actuating-link extending forward from behind the type-bar and pivoted at its front end to the type-bar, and means to positively lock said link to the type-bar behind the pivot at the front end of the link.

9. In a type-writing machine, the combination of a pivoted type-bar, key-operated mechanism comprising an actuating device, a lost-motion connection between the type-bar and one end of said device, and means operative on said device between the lost-motion connection and the other end of said device to lock said device in its normal position.

10. In a type-writing machine, the combination of a pivoted type-bar, a key-operated actuating device, a lost-motion connection between the type-bar and one end of said device, and means to lock said device to the type-bar between said lost-motion connection and the other end of said device.

11. In a type-writing machine, the combination of a pivoted type-bar, key-operated mechanism comprising an actuating-link, a lost-motion connection between the type-bar and one end of said link, and means operative on the link between the lost-motion connection and the other end of the link to lock the type-bar in its normal position.

12. In a type-writing machine, the combination of a pivoted type-bar, a key-operated actuating-link, a lost-motion connection between the type-bar and one end of said link, and means to lock the link to the type-bar between the lost-motion connection and the other end of the link.

13. In a front-strike type-writing machine, the combination of a pivoted type-bar, key-operated mechanism comprising an actuating-link extending forward from behind the type-bar, a lost-motion connection between the type-bar and the front end of the link, and means operative on the link behind the lost-motion connection to lock the type-bar in its normal position.

14. In a front-strike type-writing machine, the combination of a pivoted type-bar, a key-operated actuating-link extending forward from behind the type-bar, a lost-motion connection between the type-bar and the front end of the link, and means to lock the link to the type-bar behind the lost-motion connection.

15. In a type-writing machine, the combination of a pivoted type-bar, a key-operated actuating-link, a lost-motion connection between the type-bar and one end of said link, a detent on the link between said lost-motion connection and the other end of the link, and a counterpart to coact with said detent in locking the type-bar.

16. In a type-writing machine, the combination of a pivoted type-bar, a key-operated actuating-link, a lost-motion connection between the type-bar and one end of said link, a detent on the link between said lost-motion connection and the other end of the link, and a counterpart on the type-bar to coact with said detent in locking the type-bar.

17. In a front-strike type-writing machine, the combination of a pivoted type-bar, a key-operated actuating-link extending forward

from behind the type-bar, a lost-motion connection between the type-bar and the front end of the link, a detent on the link between said lost-motion connection and the other end of the link, and a counterpart to coact with said detent in locking the type-bar.

18. In a front-strike type-writing machine, the combination of a pivoted type-bar, a key-operated actuating-link extending forward from behind the type-bar, a lost-motion connection between the type-bar and the front end of the link, a detent on the link between said lost-motion connection and the other end of the link, and a counterpart on the type-bar to coact with said detent in locking the type-bar.

19. In a type-writing machine, the combination of a pivoted type-bar having a catch on the end thereof near its pivot, key-operated mechanism comprising an actuating device connected with the type-bar between said catch and the swinging end of the type-bar, and means to coact with said catch in positively locking the type-bar in its normal position.

20. In a type-writing machine, the combination of a pivoted type-bar having a catch on the end thereof near its pivot, and key-operated mechanism comprising an actuating device connected with the type-bar between said catch and the swinging end of the type-bar and having on it the counterpart of said catch.

21. In a type-writing machine, the combination of a pivoted type-bar having a catch on the end thereof near its pivot, and key-operated mechanism comprising an actuating-link pivoted to the type-bar between the locking device and the swinging end of the type-bar and having on it the counterpart of said catch.

22. In a type-writing machine, the combination of a pivoted type-bar having a catch on the end thereof near its pivot, a key-operated actuating device having on it the counterpart of said catch, and a lost-motion connection securing the actuating device to the type-bar between the swinging end of the latter and said catch.

23. In a front-strike type-writing machine, the combination of a pivoted type-bar having a catch thereon behind its pivot, and a key-operated mechanism comprising an actuating device pivotally secured to the type-bar and having on it means to engage said catch.

24. In a front-strike type-writing machine, the combination of a pivoted type-bar having a catch thereon behind its pivot, a key-operated actuating device having on it means to engage said catch, and a lost-motion connection securing the actuating device to the type-bar.

25. In a type-writing machine, the combination of a type-bar hanger, a type-bar comprising a socket fitting on the head of the hanger and pivoted thereto, the top of the socket forming a catch, key-operated mechanism comprising an actuating device connected with the type-bar, and means to coact with said catch in locking the type-bar in its normal position.

26. In a type-writing machine, the combination of a type-bar hanger, a type-bar comprising a socket fitting on the head of the hanger and pivoted thereto, the top of the socket forming a catch, and a key-operated actuating device connected with the type-bar and having on it the counterpart of said catch.

27. In a type-writing machine, the combination of a type-bar hanger, a type-bar comprising a socket fitting on the head of the hanger and pivoted thereto, the top of the socket forming a catch, key-operated mechanism comprising an actuating device, a lost-motion connection between said actuating device and the type-bar, and means to coact with said catch in locking the type-bar in its normal position.

28. In a type-writing machine, the combination of a type-bar hanger, a type-bar comprising a socket fitting on the head of the hanger and pivoted thereto, the top of the socket forming a catch, a key-operated actuating device having on it the counterpart of said catch, and a lost-moton connection between said actuating device and the type-bar.

29. In a front-strike type-writing machine, the combination of a pivoted type-bar, key-operated mechanism comprising an actuating-link connected at one end with the type-bar and carrying between its connection with the type-bar and its other end a hook-shaped detent, and means for engaging said detent to prevent a rebound of the type-bar.

30. In a front-strike type-writing machine, the combination of a pivoted type-bar provided with a catch, and key-operated mechanism comprising an actuating-link connected at one with the type-bar and provided between its connection with the type-bar and its other end with a hook-shaped detent for engaging said catch to prevent a rebound of the type-bar.

31. In a front-strike type-writing machine, the combination of a key-lever, a sublever operated thereby, an actuating-link connected to said sublever, a type-bar connected to said actuating-link, a catch on the type-bar, and means on the link between the connections at its ends for engaging said catch to positively lock the type-bar in its normal position.

32. In a front-strike type-writing machine, the combination of a pivoted type-bar, and means operative on the type-bar both in front of and behind its pivot to lock the type-bar in its normal position.

33. In a front-strike type-writing machine, the combination of a pivoted type-bar, and mechanism comprising an actuating-link operative on the type-bar both in front of and behind its pivot to lock the type-bar in its normal position.

34. In a type-writing machine, the combination of a pivoted type-bar, key-operated mechanism comprising an actuating device, a connection between one end of said device and the type-bar, and means operative on said device between said connection and the other end of said device to lock the type-bar in its normal position, said mechanism including means operative by the key to release the type-bar from the lock before motion is imparted to the type-bar.

35. In a type-writing machine, the combination of a pivoted type-bar, key-operated mechanism comprising an actuating device, a connection between one end of said device and the type-bar, and means to lock said device to the type-bar between said connection and the other end of said device, said mechanism including means operative by the key to unlock said device from the type-bar before motion is imparted to the type-bar.

Signed at Syracuse, in the county of Onondaga and State of New York, this 1st day of February, A. D. 1904.

FRANK A. YOUNG.

Witnesses:
PERCY RIDINGS,
RAYMOND L. WILLIAMS.