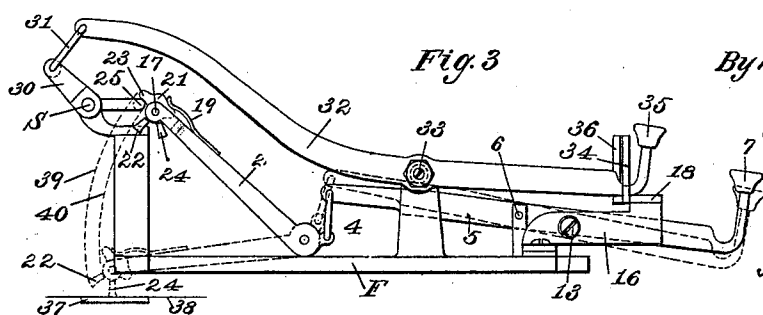
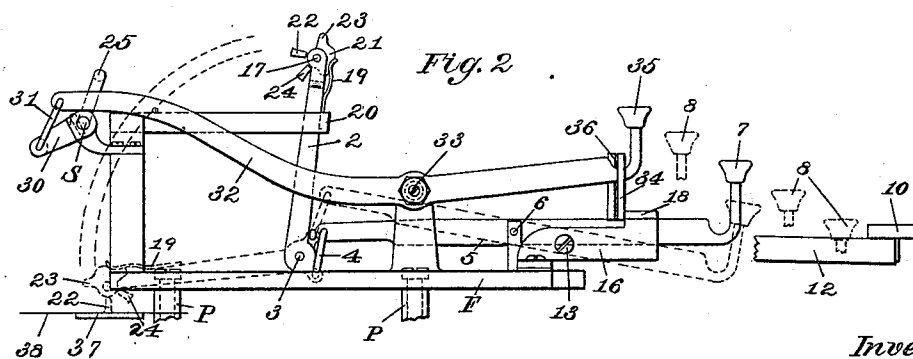
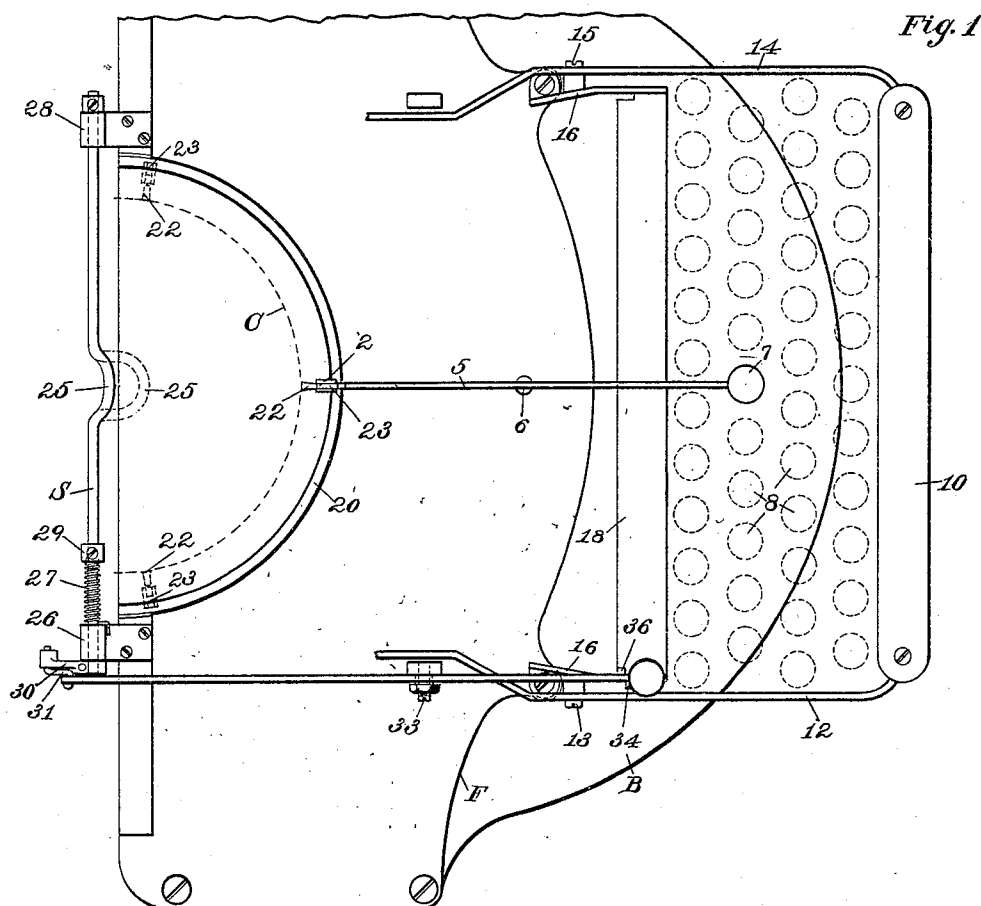


(No Model.)

G. H. WOODS.
TYPE WRITING MACHINE.

No. 461,790.

Patented Oct. 20, 1891.



Inventor:
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By his Attorney,

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UNITED STATES PATENT OFFICE.

GEORGE H. WOODS, OF HARTFORD, CONNECTICUT.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 461,790, dated October 20, 1891.

Application filed April 2, 1891. Serial No. 387,395. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. WOODS, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to that class of type-writers known as "typographs," and has for its object to furnish a type-writer of that class having a multiplicity of types on one type-bar and having means shifting said types from and into their working position.

In the drawings accompanying and forming a part of this specification, Figure 1 is a plan view of portions of a typograph or type-writer embodying my present improvements. Fig. 2 is a side elevation of the principal portions of the machine shown in Fig. 1. Fig. 3 is a view similar to Fig. 2, showing the operative parts in a different position and illustrating the operation of my improvements.

Similar characters designate like parts in all the figures.

The typograph shown in the drawings comprises the usual bottom plate or base B and the top plate or frame F, carried by suitable posts, as P P, set on the base. The machine has a series of type-bars arranged in a "type-circle," which is an arc of the circle C. Each type-bar is connected with a corresponding key-lever supported and operating in the usual manner. In the drawings only one type-bar and key-lever therefor are shown. The type-bar (designated by 2) is pivoted at 3 in the usual support, (not herein shown,) and is connected by the link 4 with the rearward end of a key-lever 5, that is pivotally supported at 6, and is provided at its front end with the finger-key 7, forming one of the keys of the usual key-board. The usual positions of the other keys of the key-board are shown by dotted circles 8. The usual space-bar 10 is shown located forward of the keys, being carried by the levers 12 and 14, which are pivoted at 13 and 15 to the ends 16 16 of the stop-bar 18, which bar lies immediately over the key-levers for limiting the upward movement thereof. The usual stop-segment 20 is provided to receive the blow of the type-bars on their return stroke. The operation of the

type-bar will be understood by comparison of Figs. 2 and 3, it being shown by solid lines in its retracted position in Fig. 2 and shown in its forward position by dotted lines in Figs. 2 and 3. The corresponding portions of the key-lever operatively connected to actuate said type-bar are shown by corresponding solid and dotted lines in Fig. 3. The typograph having the features here described is shown and described in United States Letters Patent No. 372,602, granted to A. W. Cash, November 1, 1887.

According to my present improvements the type-bar 2 is provided with two types 22 and 24, which are carried by a type-carrier or similar device pivotally supported at 17 in the outer or swinging end of the type-bar. Said carrier has means coacting with a stop-bar or type-shifter, whereby the carrier is actuated on the working stroke of the type-bar to shift the types from their positions shown in Fig. 2 to their positions shown by dotted lines in Fig. 3. A detent-spring 19, carried on the type-bar and engaging with the detent-cam 21 of the type-carrier, serves to temporarily detain said carrier in its said positions respectively. The means on the type-carrier, which coacts with the said type-shifter, consists of a suitable projecting part, which may be designated as the cam or arm 23.

The carrier-actuator consists of a movably-supported bar or stop located to engage the said type-carrier arm or cam on the working stroke of the type-bar, and thereby to shift the types from one to the other of their respective positions. Said actuator may properly consist of the curved portion 25 of the stop-shaft S, this shaft being supported at the rear of the machine by the bearings 26 and 28, that are suitably fixed in any convenient manner to the frame-work of the machine. The working position of said actuator is shown by dotted lines in Fig. 1 and by solid lines at 25 in Fig. 3. In Fig. 2 it is shown retracted to its non-effective position. For turning the shaft S to retract the actuator a torsion-spring 27, carried on said shaft and engaging between the bearing 26 and collar 29, fixed on the shaft, is provided; but any other form of spring convenient for said purpose may obviously be substituted for the spring 27. For actuating the shaft S to throw

the carrier-actuator from its inoperative position in Fig. 2 to its operative position in Fig. 3, said shaft is or may be furnished with the rocker-arm 30, rigidly fixed thereto, this arm being connected by means of a suitable link, as 31, to the rearward end of a key-lever 32, that is pivotally supported at 33 and is furnished at its forward end with the upper-case key 35. The forward end of the upper-case lever 32 is or may be guided between the guide-posts 34 and 36, which extend upward from the aforesaid stop-bar 18, as will be understood from the drawings.

In Figs. 2 and 3 the usual platen of the machine is designated by 37, the line 38 indicating a strip of paper lying on the platen, which is located in the center of the type-circle. The space between the dotted lines 39 and 40, Fig. 3, represents the common path of the two type-carrier arms 22 and 23. When the type-carrier is located on the type-bar, as shown in Fig. 2, the arm 23 of said carrier stands in said path, while the opposite arm 22 stands outside of said path. On the shifting of the type-plate from the position shown in Fig. 2 to the position shown by dotted lines in Fig. 3 said arm 22 passes outwardly relatively to the type-bar into said common path, while the aforementioned arm 23 withdraws therefrom. Accordingly when the carrier stands on the type-bar, as indicated in Fig. 2 and the stop 25 is thrown into its working position, as in Fig. 3, the parts are in proper position for bringing the upper-case type 24 into working position on the working stroke of the type-bar, at the same time throwing the last-named type-carrier arm 22 into position for reversing the movement of the type-carrier when the type-bar makes its return stroke. Said common path between the lines 39 and 40, Fig. 3, is also the "path of said carrier" mentioned in the claims, in the sense that it is the path of that portion of the carrier which engages the shiftable stop. The type 22 is supposed to be a "lower-case" type, while the type 24 is an "upper-case" type. When the stop-bar 25 is in its non-effective position shown in Fig. 2, the type-bar 2 may be thrown down from its position shown in solid lines in Fig. 2 to its position shown in dotted lines in Fig. 2 without operating the type-carrier and for using the lower-case type 22, since when said stop-bar is retracted, as shown, the arm 23 of the type-carrier passes clear thereof. When it is required, however, to print the upper-case letter, the operator before striking the key 7 therefor presses down on the upper-case key 35, thereby throwing the upper-case lever 32 from its position in Fig. 2 to its position in Fig. 3 and shifting the stop-bar 25 into the path of the type-carrier arm 23, which path lies between the dotted lines 39 and 40, Fig. 3. The operator next strikes the key 7 and by means of the lever 5 and its connections throws down the type-bar from its position in Fig. 2 to its position shown in dotted lines in Fig. 3, the

type-carrier during the forward stroke of said bar striking its arm 23 against said bar, as shown by the solid lines in Fig. 3, thereby shifting the types, as described. On the return-stroke of the type-bar (which is effected by the usual spring not herein shown) the lower-case type (or an arm in place thereof) strikes the under side of said stop-bar, and thus is shifted to its original position. (Shown in Fig. 2.) The type-carrier actuator is shown located about midway of the stroke of the type-bar, so that the type-bar and said actuator may be operated simultaneously, the stop reaching its working position (shown in Fig. 3) in time to intercept and actuate the type-carrier, as hereinbefore described in connection with said figure. This facilitates the operation of the machine, since the upper-case key 35 need be struck only slightly in advance of the type-key 7, the latter key being struck before the former one completes its stroke.

Having thus described my invention, I claim—

1. In a type-writer, the combination, with the swinging type-bar, of a type-carrier movably supported thereon and a key-actuated type-carrier actuator located beyond the path of the type-bar and shiftable from and into the path of said carrier.

2. In a type-writer, the combination, with the swinging type-bar, of the type-provided carrier pivoted near the outer end thereof and having an arm projecting beyond the path of the type-bar and the type-carrier actuator shiftable toward and from the type-bar axis from and into the path of said arm.

3. In a type-writer, the combination, with the stop-shaft carrying the type-actuating stop, of a key-lever connected to turn said shaft and throw the stop into its operative position on the downward movement of the key.

4. In a type-writer, the combination, with the type-bars arranged in a circular line and swinging to a common point within said line, of a type-actuating stop located when in its working position concentric to the type-circle and means for shifting said stop to and from its working position.

5. In a type-writer, the combination, with the shaft supported in bearings and having the type-carrier actuator, of the arm on said shaft, the key-lever operatively connected to said arm, a stop limiting the movement of said lever, and means for retracting the lever and shaft, substantially as described.

6. In a type-writer, the combination, with the swinging type-bar, of the type-provided carrier pivoted in the outer end of said bar to swing thereon in the plane substantially of the type-bar movement and having two diverging arms which extend when in its outermost position beyond the end of the type-bar, and the stop supported to be shiftable from and into the path of the extended arm, whereby the type-carrier is actuated by said stop

in one direction on the working stroke of the type-bar and in the other direction on the return-stroke of the type-bar, substantially as described.

- 5 7. In a type-writer, the combination, with a pair of key-levers, of a swinging type-bar operatively connected to one lever, a swinging stop operatively connected to the other

lever, and a swinging type-carrier located on the type-bar to engage the stop when the stop- 10 lever key is down and to pass the stop when said key is raised, substantially as set forth.

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