Dec. 19, 1922. 1,439,669.

W. F. HELMOND.

TYPEWRITING MACHINE.

FILED MAY 27, 1919.

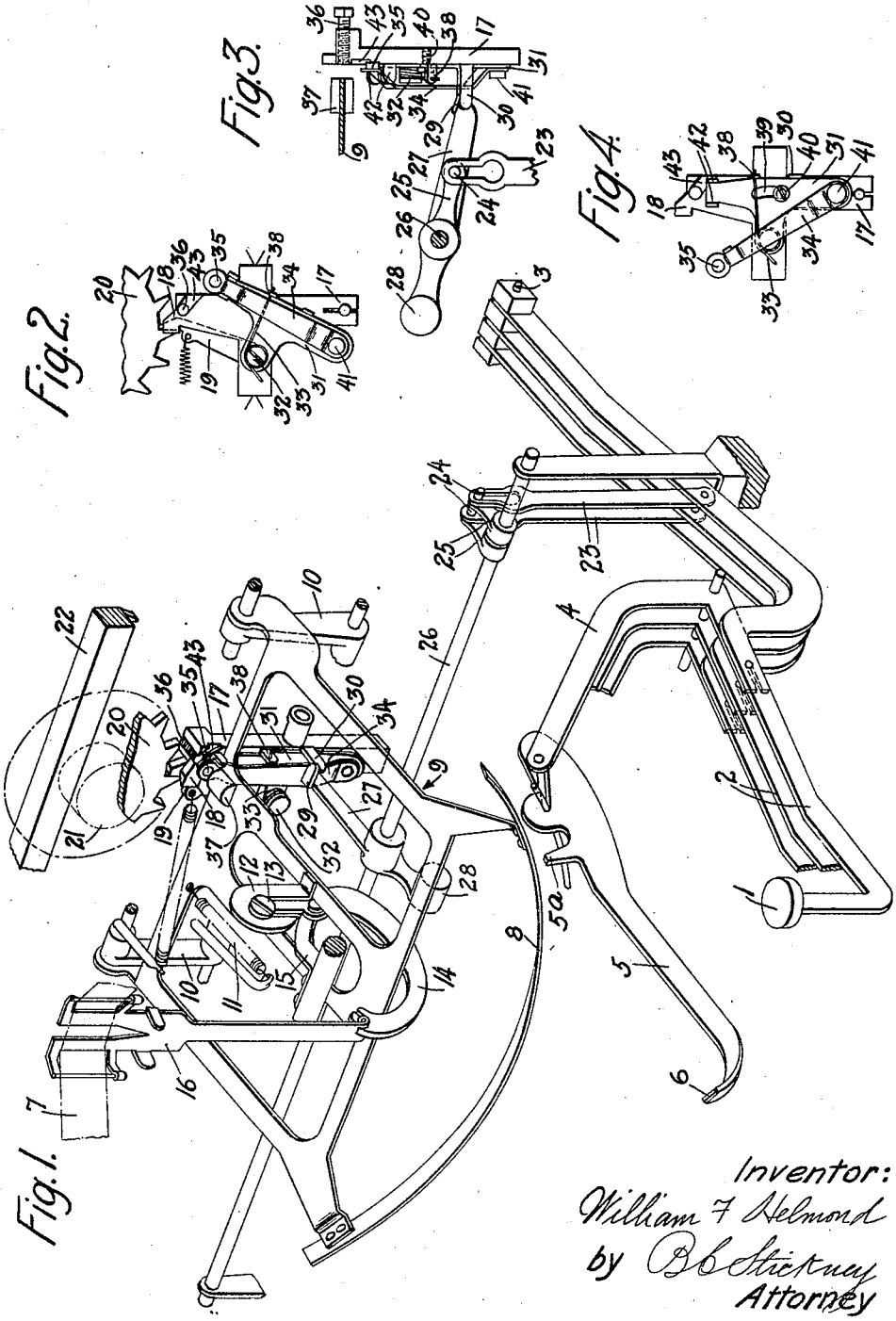


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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Patented Dec. 19, 1922. 1,439,669

UNITED STATES PATENT OFFICE.

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TYPEWRITING MACHINE.

Application filed May 27, 1919. Serial No. 300,110.

To all whom it may concern:

Be it known that I, WILLIAM F. HELMOND, a citizen of the United States, residing in Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Typewriting Machines, of which the following is a specification.

This invention relates to silent-key mechanism, such as that disclosed in my Patent No. 827,726, dated August 7, 1906.

The ribbon-vibrator is operated in the usual manner by a universal bar, and the latter is operated by all the type-keys, including the accent-key or keys; but each of the latter controls means for preventing the carriage from being fed by the operation of the universal bar, and hence it is practicable by striking one or more accent-keys and then an ordinary type-key to secure proper register or relation of the accent or accents above or below the letter upon the written sheet. The preventing means in this patented structure includes an interponent which is slidably mounted on the dog-carrier and connected with the accent-key or accent-keys, so as to be moved to ineffective position upon actuation of the accent-key or accent-keys.

In carrying out my present invention, the interponent, which, under normal conditions, serves to transmit movement from the universal frame to the dog-carrier, is pivotally mounted upon the dog-carrier, thus avoiding the tendency to bind, incident to the slide structure, and providing a simple and efficient structure, the parts of which are adapted to be easily and economically manufactured.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a perspective view of my improvements applied to the carriage-feeding and ribbon-vibrating mechanisms of an Underwood front-strike typewriting machine, the parts being shown in normal position.

Figure 2 is a front view of the dog-carrier with the interponent in ineffective position.

Figure 3 is a side view of the dog-carrier and interponent with the associated parts, the interponent being in ineffective position.

Figure 4 is a view similar to Figure 2, but showing the member on which the interponent is mounted in its normal position, and the interponent moved to one side to render certain parts accessible.

Upon depression of an accent-key 1, of which there may be one or more, motion will be transmitted, by means of a key-lever 2 mounted on a rod 3, to a bell-crank 4 and an accent type-bar 5, carrying an accent-type 6, to swing the type-bar upwardly and rearwardly to strike through ribbon 7 against a platen, not shown. As the type-bar 5 approaches the end of its stroke, a heel 5^a thereon will engage a bar 8, forming part of a universal frame 9, supported on rocking arms 10 at the rear of the machine, and move the same to the rear. A spring 11, connecting universal frame 9 to a fixed part of the machine, tends to hold the universal frame in the forward position. Mounted on universal frame 9 is a slotted bracket 12, embracing a pin 13 in the form of a shouldered screw secured to the end of a lever 14 pivoted on a fixed bracket 15. In the rearward motion of said universal frame 9, bracket 12 will act to rock lever 14, and thereby move ribbon-vibrator 16 into position to present ribbon 7 between the type and the platen.

It will be understood that actuation of any of the ordinary type-bars will effect the movement of the parts so far referred to in the same way as in the actuation of the accent type-bar. Upon actuation of the ordinary keys, frame 9 will actuate a pivoted dog carrier 17 to effect movement of fast and loose pawls 18 and 19, respectively, to release, for step-by-step movement, escapement wheel 20 connected with a pinion 21 meshing with a rack 22 connected to the usual typewriter carriage.

In order to obtain proper registration of an accent-key with the letter printed upon the written sheet, it is necessary to render the escapement mechanism ineffective, or non-operative at the time of printing an accent character, so that the letter printed immediately thereafter will register therewith. To this end a link 23, slotted at its upper end, is connected with each of the accent-keys, and said slotted end embraces pins 24 mounted on arms 25 fixed on a shaft 26.

It will be seen that depression of either of the accent-key-levers shown will not in-

terfere in any way with the position of the other. Upon rocking of shaft 26, due to depression of an accent-key, a lever 27, provided with a counterweight 28 at its forward end to return the parts to normal position, will press a finger 29 thereon downward against a lug 30 carried by a T-shaped rocker 31 pivoted at 32 on carrier 17. A spring 33 supported at the pivot 32 acts to urge rocker 31 upwardly. Carried by said rocker 31 is an interponent 34 having a head 35 adapted to transmit motion to a screw 36, engaging in a threaded opening in carrier 17, from tappet 37 carried by universal frame 9. It will be seen that screw 36 constitutes an adjustable abutment by means of which the extent of movement of carrier 17 may be regulated. The connection between spring 33 and rocker 31 is obtained by means of a lug 38, through which the end of said spring passes.

In order to limit the movement of rocker 31 on carrier 17, said rocker is provided with an arcuate slot 39 concentric with the pivot 32, and a screw 40 passing therethrough is secured in a threaded opening in carrier 17. It will be seen that the screw-and-slot construction serves not only to limit the movement of rocker 31, but also to maintain it in proper position on the front of carrier 17. Said interponent 34 is in the form of a resilient bar and is pivoted at 41 on rocker 31, and at its upper end is embraced by lugs 42 on said rocker 31, so as to normally hold said interponent against movement relative to said rocker, but to permit movement with reference to said rocker when sprung outwardly therefrom. As seen in Figure 4, it is necessary to move interponent 34 to one side in order to make the head of screw 40 accessible. Upon inspection of Figures 1 and 2, it will be evident that, due to the position of the pivot 32 at the end of the leg of the T-shaped rocker, the head 35 on the interponent 34 will be swung downwardly out of the path of the frame 9, as well as laterally out of the path of the tappet 37.

In order to insure the proper position of head 35 in the normal operation of the mechanism, a groove 43 is provided in carrier 17 leading from the edge of said carrier to the threaded opening in which screw 36 engages. The groove, in connection with spring 33, insures the proper positioning of head 35 when returned to normal position under the influence of spring 33. Upon downward swinging of interponent 34 on movement to the left, as shown in Figure 4, the rocker is maintained in proper position due to the screw 40 engaging slot 39 of said rocker.

It is to be noted that the rocker 31, together with the interponent 34 carried thereby, constitutes an interponent member in the form of a bell-crank lever pivoted at 32 and having a laterally-extending operating arm terminating in the lug 30 and having an upwardly-extending interponent-forming arm terminating in the interponent head 35.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. In a typewriting machine having keys, key-actuated type-bars, and a traveling carriage, the combination with a universal frame operable by the type-bars, of carriage-feeding means including carriage-feeding dogs and a pivoted carrier for said dogs, an interponent, pivotally mounted on said carrier on an axis transverse to the pivotal axis of said carrier to rock therewith, for transmitting the movement of said universal frame to said carrier, and means to swing said interponent about its pivotal mounting on said carriage to render said interponent ineffective, the pivotal axis of said interponent being displaced laterally from the effective portion of said interponent, so that, upon such swinging of the interponent, the effective portion will be swung downwardly out of the path of the universal frame as well as laterally.

2. In a typewriting machine having keys, key-actuated type-bars, and a traveling carriage. the combination with a universal frame operable by the type-bars and having a tappet thereon, of carriage-feeding means including carriage-feeding dogs and a carrier for said dogs, an interponent having a head at one end to transmit motion from said universal frame to said carrier, a member on which said interponent is movably mounted, means for releasably holding said interponent in fixed position on said member, said member being pivoted on said carrier, so that, when swung from normal position, the head of said interponent will be swung out of the path of said tappet and out of the path of said frame, means to limit the movement of said member on said carrier, means tending to hold said member in a position to render said interponent effective, and means to swing said member relatively to said carrier to render said interponent ineffective.

3. In a typewriting machine having keys, key-actuated type-bars, and a traveling carriage, the combination with a universal frame operable by the type-bars, of carriage-feeding devices including carriage-feeding dogs and a carrier for said dogs, an interponent comprising a resilient bar having a head at one end to transmit motion from said universal frame to said carrier, a member to which said bar is pivoted, said member being pivoted on said carrier, lugs on said member

engaging said bar on opposite sides, said lugs being normally effective to prevent movement of said bar about its pivot, but ineffective when said resilient bar is sprung outwardly from said member, and means to limit the movement of said member on said carrier.

4. In a typewriting machine having keys, key-actuated type-bars and a traveling carriage, the combination with a universal frame operable by the type-bars, of carriage feeding devices including carriage feeding dogs and a carrier for said dogs having a groove extending from its edge to a position opposite the engaging portion of said universal frame, and an interponent having a head adapted to enter said groove, and to transmit movement from said frame to said carriage, said interponent being pivotally mounted on said carrier to enable said head to travel in said groove.

5. In a typewriting machine having keys, key-actuated type-bars, and a traveling carriage, the combination with a universal frame operable by the type-bars, of carriage feeding means including carriage feeding dogs and a carrier for said dogs having an adjustable abutment and a guide leading from the side of said carrier to said abutment, and an interponent having a head adapted to co-operate with said guide and to transmit motion from said frame to said carriage, said interponent being pivotally mounted on said carrier to enable said head to co-operate with said guide.

6. In a typewriting machine having keys, key-actuated type-bars, and a traveling carriage, the combination with a universal frame operable by the type-bars, of carriage-feeding means including carriage-feeding dogs and a carrier for said dogs, an interponent comprising a resilient bar having a head at one end to transmit motion from said universal frame to said carrier, a member on which said bar is pivoted, said member being pivoted on said carrier at a point laterally offset from said bar and having an arcuate slot concentric with its pivot, a screw passing through said slot and having threaded engagement with said carrier, and means, including lugs on said member engaging said bar on opposite sides, for normally holding the bar against movement relative to said member, but permitting such movement when said resilient bar is sprung outwardly from said member, thereby rendering said screw accessible.

7. In a typewriting machine having keys and key-actuated type-bars therefor, and a traveling carriage, the combination with a universal frame operable by the type-bars, of carriage-feeding means including carriage-feeding dogs and a carrier for said dogs, a screw engaging in a threaded opening in said carrier and constituting an adjustable abutment, said carrier having a groove extending from its side to said threaded opening, an interponent comprising a resilient bar having at one end a head adapted to enter said groove, and to enable actuation of said carrier by engagement with said screw, the movement of said head in said groove being limited by the wall of said threaded opening, a T-shaped member having its leg pivoted on said carrier at a point offset from said bar, said bar being pivoted to and lying along the cross-piece of said T-shaped member, means to limit the movement of said member on said carrier, comprising a screw passing through a slot in said cross-piece concentric with the pivot of said member, and co-operating means on said bar and said member for normally holding said bar in position on said cross-piece, to permit a swinging movement relative to said cross-piece when said resilient bar is sprung outwardly from said member, thereby rendering accessible the screw passing through said slot.

8. In a typewriting machine having keys including accent-keys, key-actuated type-bars, and a traveling carriage, the combination with a universal frame operable by the type-bars, of carriage-feeding means including carriage-feeding dogs and a carrier for said dogs, an interponent having a head at one end to transmit motion from said universal frame to said carrier, and a member on which said interponent is movably mounted, means for releasably holding said interponent in fixed position on said member, said member being pivoted on said carrier, means to limit the movement of said member on said carrier, means tending to hold said member in a position to render said interponent effective, and means actuated by an accent-key to swing said member to render said interponent ineffective.

9. In a typewriting machine having keys including accent-keys, key-actuated type-bars and a traveling carriage, the combination with a universal frame operable by the type-bars, of carriage-feeding devices including carriage feeding dogs and a carrier for said dogs, an interponent comprising a resilient bar having a head at one end to transmit motion from said universal frame to said carrier, a member to which said bar is pivoted, said member being pivoted on said carrier, lugs on said member engaging said bar at opposite sides, said lugs being normally effective to prevent movement of said bar about its pivot, but ineffective when said bar is sprung outwardly from said member, and means actuated by any of said accent-keys to rock said member, and consequently to move said interponent to ineffective position.

10. In a typewriting machine having keys, key-actuated type-bars, and a travel-

ing carriage, the combination with a universal frame operable by the type-bars, of carriage-feeding means including carriage-feeding dogs and a carrier for said dogs, means to transmit motion from said universal frame to said carrier, comprising a head normally positioned between said universal frame and said carrier, a member on which said head is mounted, a rocker pivoted on said carrier and having said member pivotally mounted thereon, means including a screw engaging in said carrier and passing through a slot in said rocker to limit the movement of the rocker on the carrier, and lugs on said rocker between which said member is resiliently held to enable movement of said member when said head is engaged by said universal frame, and to enable withdrawal of said member from said lugs, in order to swing said member to one side to expose the screw of the screw-and-slot connection.

11. In a typewriting machine having a traveling carriage, a dog rocker for feeding the carriage and a universal bar for operating the dog rocker, the combination of an interponent member in the form of a bell-crank lever pivoted at the end of one of its arms on a laterally-extending hub of the dog rocker on an axis transverse to the pivotal axis of the dog rocker so as to rock therewith and having a laterally-extending operating arm and having an upwardly-extending interponent-forming arm for transmitting carriage-feeding movement from the universal bar to the dog rocker and movable out of the path of the universal bar, a type-actuating key, and operating connections between said key and the laterally-extending arm of the interponent member for rocking the interponent member on its pivot to move the interponent-forming arm thereof out of the path of the universal bar so that the dog rocker will not be operated when said key is operated.

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Witnesses:
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WILLIAM P. SMITH.