J. E. DAVIDSON.

TYPEWRITING MACHINE.

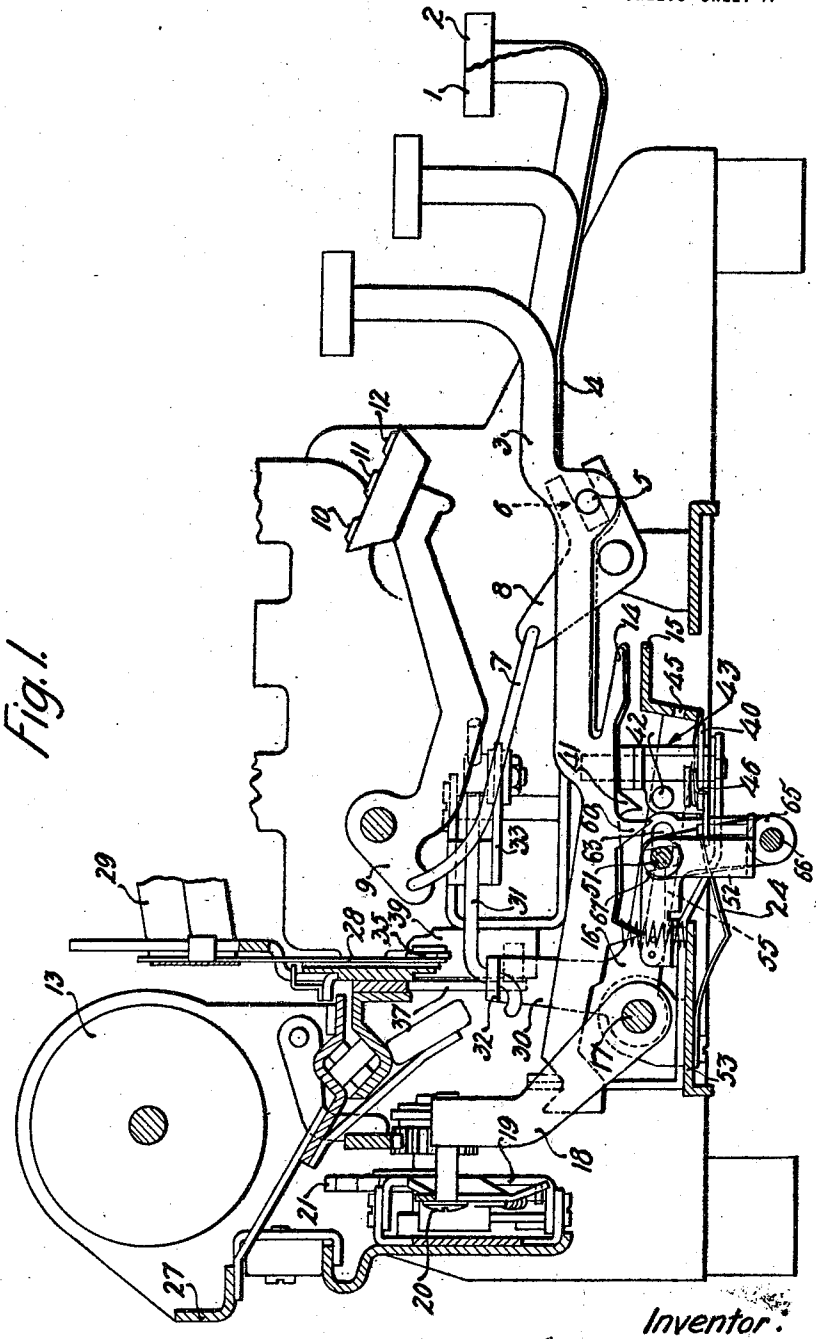
APPLICATION FILED JULY 6, 1921.

1,428,325.

Patented Sept. 5, 1922.

3 SHEETS—SHEET 1.

Fig. 1.



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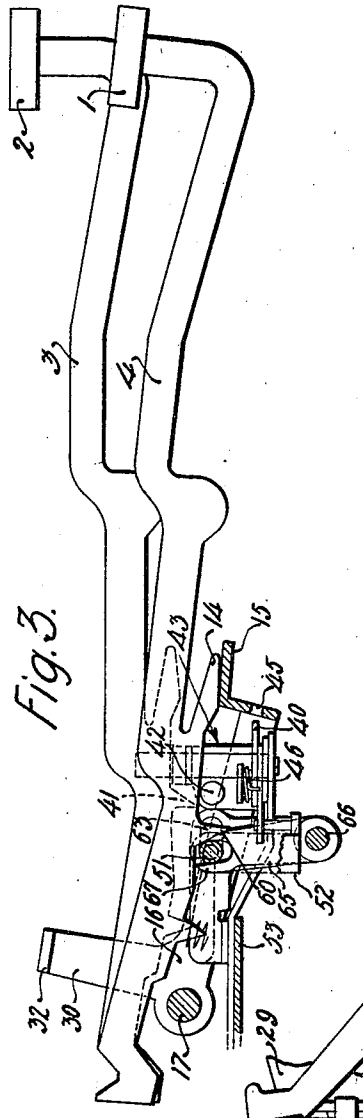

Fig. 3.

Fig. 2.

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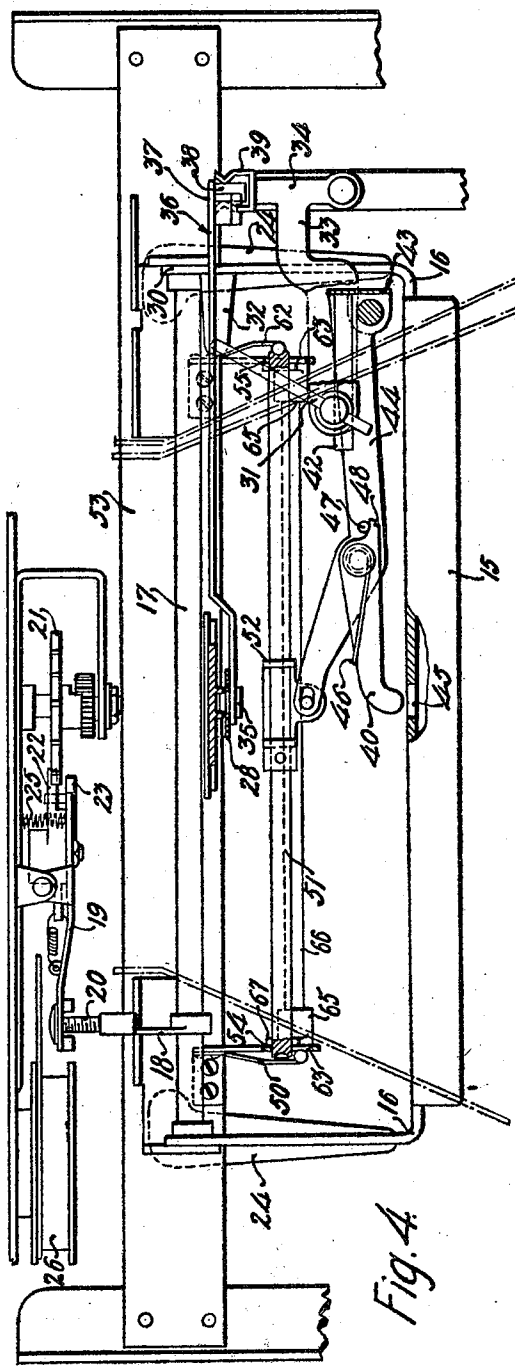

Fig. 4.

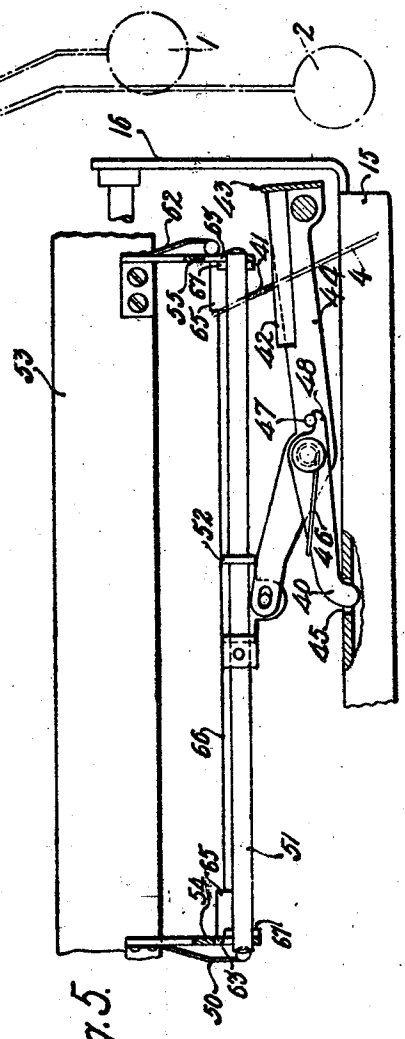

Fig. 5.

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Patented Sept. 5, 1922. 1,428,325

UNITED STATES PATENT OFFICE.

JOSHUA E. DAVIDSON, OF NEW YORK, N. Y., ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPEWRITING MACHINE.

Application filed July 6, 1921. Serial No. 482,715.

To all whom it may concern:

Be it known that I, JOSHUA E. DAVIDSON, a citizen of the United States, residing in borough of the Bronx, in the county of the Bronx, city and State of New York, have invented certain new and useful Improvements in Typewriting Machines, of which the following is a specification.

This invention relates to typewriting machines, and is herein disclosed as applied to an Underwood portable machine, one form of which is shown in the patent to Campbell, No. 1,370,281, granted March 1, 1921. It is often desired to provide connections whereby one or more type-keys shall not feed the carriage, since it is desired to print such characters as foreign accents, etc., in the same letter-space position with another character.

According to the present invention, keys of this character which are known as "silent keys," may be so connected that they may be easily incorporated in a machine of the standard type in the form of the invention herein disclosed. The universal bar, which is adapted to operate the escapement mechanism to letter-space the carriage, may be locked by a latch at the actuation of the silent key, with the result that the feeding of the carriage does not take place until the letter-feeding key is actuated to free the universal bar from its latch.

The invention may be mounted on the support for the usual line-lock lever, thus necessitating a minimum of change or adaptation of the standard machine.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a sectional side view of an Underwood portable machine with the invention applied thereto, all of the parts being in their normal positions.

Figure 2 is a view similar to Figure 1, but showing the silent key depressed to lock the universal bar and the ribbon-carrier.

Figure 3 is a portion of the machine shown in Figure 2, and shows the ordinary key depressed to release the universal bar.

Figure 4 is a plan view of a portion of the device shown in Figure 1, the parts being in their normal positions.

Figure 5 is a plan view similar to Figure 4, the universal bar being locked.

Letter-feeding type-keys 1 and silent type-keys 2, when depressed, carry down their key-levers 3 and 4, respectively, with the result that pins 5 on said key-levers carry down cam-bell-cranks 6, drawing forward the respective links 7, which are connected to the upper ends 8 of the bell-cranks 6, and are adapted to draw forward the lower ends of type-bars 9, with the result that types 10, 11 and 12, in their respective cases, are adapted to print upon the platen 13. Whenever either of the keys 1 or 2 is depressed, a lug 14, found on many of the Underwood portable typewriting machines, carries down a universal bar 15, which is carried through its bail-members 16 on a rock-shaft 17. At the depression of the universal bar 15, a rearwardly and upwardly-extending arm 18, fast to the rock-shaft 17, draws forward a dog-rocker 19, by means of a headed arm 20, formed as an adjustable screw, threaded into the arm 18. The depression of the universal bar and the drawing forward of the dog-rocker 19 carry out of the escapement-wheel 21 the loose dog 22, which normally holds said wheel, and move into engagement with said wheel the solid dog 23, there being substantially no movement of the escapement-wheel at this time. At the rise of a letter-feeding key 1, the universal bar rises under the tension of its usual springs 24, and the dog-rocker 19 returns under the pressure of its spring 25, thus re-engaging the loose dog 22 with the escapement-wheel 21 and permitting the spring-barrel 26 to draw the typewriter carriage 27, including the platen 13, along one letter-space.

To enable the types 10, 11 and 12 to print, the ribbon-carrier 28, which normally holds the ribbon 29 below the printing point, rises at the actuation of the universal bar 15. To bring this about, there is provided an upstanding arm 30 which swings forward at the depression of the universal bar, pressing upon a link 31, which is pivoted to an elbow 32 of the arm 30, thus swinging forward the long arm 33 of a bell-crank having a short arm 34, because the link 31 engages the arm 33. The rocking of the bell-crank 33, 34 lifts the ribbon-carrier 28, because the carrier is pivotally attached at 35 to the left-hand end

of the long arm of a bell-crank 36, having a dependent arm 37, which carries a pin 38, lying within the fork 39 of the short arm 34. Thus, the depression of the universal bar lifts the ribbon-carrier 28 through the connections just described, and the rise of the universal bar brings down the ribbon-carrier and the ribbon with it. The parts so far described may be substantially similar to those on machines now on the market, so far as the letter-feeding keys and the connections operated thereby are concerned.

When a silent-key 2 is depressed, it carries down the universal bar 15, as described above, by its lug 14, lifting the ribbon-carrier 28 and bringing the ribbon to the printing point. The depression of a silent-key, however, is also effective to carry from its normal ineffective position, seen in Figure 1, to its effective position, seen in Figure 2, a locking hook or latch 40, which normally has its nose to the rear of the universal bar 15, and so is unable to accidentally interfere with the actuation of the bar. For controlling latch 40, the silent key-lever is provided with a cam-lug 41, which, when depressed, engages an arm 42 of a bell-crank 43, the other arm 44, carrying the latch 40, being swung forwardly until the nose of latch 40 engages in a notch 45 in the universal bar, which has reached substantially the bottom of its stroke, having been depressed by the usual lugs 14. The latch 40 is pivotally mounted on arm 44, and is spring-pressed forwardly by a spring 46 to allow for rearward movement of the latch if it should happen to strike any part of the universal bar other than the slotted portion, the forward movement of latch 40 being limited by pin 47 on arm 44 engaging a shoulder 48 of the latch. The depression of the silent key, therefore, urges the latch 40 forwardly, with the result that the nose of the latch engages the depressed universal bar to hold it down.

At the rise of the silent key, the latch 40 remains in the notch 45 of the universal bar, being held by a detent spring 50 which has seated itself in a depression in the end of a slidably-mounted rod 51, said rod 51 having a yoke 52 fixed thereto, whereby it is connected to arm 44, as by a pin-and-slot connection, to move forwardly and rearwardly with arm 44 and, hence, with latch 40. The rod 51 operates in slots 63 in brackets 54 and 55 in which said rod is supported, and is guided in its movement by rock-arms 65 fixed to a shaft 66, journaled in said brackets said rock-arms having forked ends 67 engaging the rod 51. When the arm 44 is rocked forwardly, therefore, the rod 51 is drawn forwardly in slots 63 in brackets 54 and 55, and held by detent spring 50 fixed to one of said brackets (here shown as bracket 54). By thus holding the universal bar locked in lowered position, the fixed dog of the escapement mechanism is held in engagement with the escapement wheel 21, preventing the carriage from feeding, and also holds the ribbon-carrier 28 elevated, so that, at the next actuation of the type-key, the ribbon will cause the printing of the appropriate character.

If any ordinary letter-feeding key 1 is next depressed, a cam-lug 60 thereon engages rod 51 in its forward position to press said bar rearwardly against the action of detent spring 50, forcing yoke 52, and hence arm 44, rearwardly, to disengage latch 40 from the universal bar. This releases the universal bar which is held depressed, however, by a lug 14 on the depressed key until the key is released, whereupon the universal bar rises, the ribbon-carrier is lowered, and the carriage is letter-spaced. A detent spring 62, smiliar to spring 50, is mounted preferably on the other of said brackets (here shown as bracket 55), and engages the end of rod 51 for holding the bar in its rearward position.

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, the combination with a frame and a traveling carriage, of an escapement mechanism for letter-feeding the carriage, a universal bar for actuating the escapement mechanism, letter-feeding type-keys which actuate the universal bar a silent type-key which depresses said universal bar when operated, and means for holding said bar depressed to prevent actuation of said escapement mechanism, said means comprising a substantially horizontal, pivotally mounted lever, and means carried by said silent type-key for moving one end of said lever forwardly into locking engagement with the universal bar when the silent type-key has been operated to depress the universal bar.

2. In a typewriting machine, the combination with a frame and a traveling carriage, of an escapement mechanism for letter-feeding the carriage, a universal bar for actuating the escapement mechanism, letter-feeding type-keys which actuate the universal bar, a silent type-key which depresses said universal bar when operated, and means for holding said bar depressed to prevent actuation of said escapement mechanism, said means comprising a substantially horizontal, pivotally mounted bell-crank, and means carried by said silent type-key and engaging one arm of said bell-crank for moving the other arm thereof forwardly into locking engagement with the universal bar when the silent type-key has been operated to depress the universal bar.

3. In a typewriting machine, the combina-

tion with a frame and a traveling carriage, of an escapement mechanism for letter-feeding the carriage, a universal bar for actuating the escapement mechanism, letter-feeding type-keys which actuate the universal bar, a silent type-key which depresses said universal bar when operated, and means for holding said bar depressed to prevent actuation of said escapement mechanism, said means comprising a substantially horizontal, pivotally mounted lever, said universal bar having a slot, and means carried by said silent type-key for moving one end of said lever forwardly into said slot in locking engagement with said bar when the silent type-key has been operated to depress the universal bar.

4. In a typewriting machine, the combination with a frame and a traveling carriage, of an escapement mechanism for letter-feeding the carriage, a universal bar for actuating the escapement mechanism, letter-feeding type-keys which actuate the universal bar, a silent type-key which depresses said universal bar when operated, and means for holding said bar depressed to prevent actuation of said escapement mechanism, said means comprising a substantially horizontal, pivotally mounted bell-crank, a latch pivotally mounted on one arm of said bell-crank, a spring normally pressing said latch forwardly but permitting yielding movement of said latch rearwardly, and means carried by said silent type-key and engaging the other arm of said bell-crank for moving said latch forwardly into locking engagement with the universal bar when the silent type-key has been operated to depress the universal bar.

5. In a typewriting machine, the combination with a frame and a traveling carriage, of an escapement mechanism for letter-feeding the carriage, a universal bar for actuating the escapement mechanism, letter-feeding type-keys which actuate the universal bar, a silent type-key which depresses said universal bar when operated, and means for holding said bar depressed to prevent actuation of said escapement mechanism, said means comprising a substantially horizontal, pivotally mounted bell-crank, said universal bar having a slot, a latch pivotally mounted on one arm of said bell-crank, a spring normally pressing said latch forwardly but permitting yielding movement of said latch rearwardly, means for limiting the rearward movement of said latch, and means carried by said silent type-key and engaging the other arm of said bell-crank for moving said latch forwardly into said slot in locking engagement with the universal bar when the silent type-key has been operated to depress the universal bar.

6. In a typewriting machine, the combination with a frame and a traveling carriage, of an escapement mechanism for letter-feeding the carriage, a universal bar for actuating the escapement mechanism, letter-feeding type-keys which actuate the universal bar, a silent type-key which depresses said universal bar when operated, means for holding said bar depressed to prevent actuation of said escapement mechanism, said means comprising a substantially horizontal, pivotally mounted lever, and means carried by said silent type-key for moving one end of said lever forwardly into locking engagement with the universal bar when the silent type-key has been operated to depress the universal bar, a slide member connected to said forwardly moving end, and means carried by said letter-feeding type-keys and engaging said slide member when said letter-feeding type-keys are depressed for moving said slide member and lever rearwardly to unlock said universal bar.

7. In a typewriting machine, the combination with a frame and a traveling carriage, of an escapement mechanism for letter-feeding the carriage, a universal bar for actuating the escapement mechanism, letter-feeding type-keys which actuate the universal bar, a silent type-key which depresses said universal bar when operated, means for holding said bar depressed to prevent actuation of said escapement mechanism, said means comprising a substantially horizontal, pivotally mounted lever, and means carried by said silent type-key for moving one end of said lever forwardly into locking engagement with the universal bar when the silent type-key has been operated to depress the universal bar, a slide member connected to said forwardly moving end, and a cam-lug carried by said letter-feeding type-keys and engaging said slide member when said letter-feeding type-keys are depressed for moving said slide member and lever rearwardly to unlock said universal bar.

8. In a typewriting machine, the combination with a frame and a traveling carriage, of an escapement mechanism for letter-feeding the carriage, a universal bar for actuating the escapement mechanism, letter-feeding type-keys which actuate the universal bar, a silent type-key which depresses said universal bar when operated, means for holding said bar depressed to prevent actuation of said escapement mechanism, said means comprising a substantially horizontal, pivotally mounted bell-crank, and a cam-lug carried by said silent type-key and engaging one arm of said bell-crank for moving the other arm of said bell-crank forwardly into locking engagement with the universal bar when the silent type-key has been operated to depress the universal bar, a slide member connected to said forwardly moving arm, and a cam-lug carried by each of said letter-feeding type-keys and engag-

ing said slide member when said letter-feeding type-keys are depressed for moving said slide member and the connected bell-crank arm rearwardly to unlock said universal bar.

9. In a typewriting machine, the combination with a frame and a traveling carriage, of an escapement mechanism for letter-feeding the carriage, a universal bar for actuating the escapement mechanism, letter-feeding type-keys which actuate the universal bar, a silent type-key which depresses said universal bar when operated, means for holding said bar depressed to prevent actuation of said escapement mechanism, said means comprising a substantially horizontal, pivotally mounted lever, and means carried by said silent type-key for moving one end of said lever forwardly into locking engagement with the universal bar when the silent type-key has been operated to depress the universal bar, a slide member connected to said forwardly moving end, means carried by said letter-feeding type-keys and engaging said slide member when said letter-feeding type-keys are depressed for moving said slide member and lever rearwardly to unlock said universal bar, means for holding said lever in forward position in locking engagement with said bar, and means for holding said lever in rearward position out of engagement with said bar.

10. In a typewriting machine, the combination with a frame and a traveling carriage, of an escapement mechanism for letter-feeding the carriage, a universal bar for actuating the escapement mechanism, letter-feeding type-keys which actuate the universal bar, a silent type-key which depresses said universal bar when operated, means for holding said bar depressed to prevent actuation of said escapement mechanism, said means comprising a substantially horizontal pivotally mounted lever, and means carried by said silent type-key for moving one end of said lever forwardly into locking engagement with the universal bar when the silent type-key has been operated to depress the universal bar, a slide member connected to said forwardly moving end, means carried by said letter-feeding type-keys and engaging said slide member when said letter-feeding type-keys are depressed for moving said slide member and lever rearwardly to unlock said universal bar, a detent spring engaging said slide member to hold said member and the co-operating end of said lever in forward position, and a second detent spring engaging said slide member to hold said member and the co-operating end of said lever in rearward position.

11. In a typewriting machine, the combination with a frame and a traveling carriage, of an escapement mechanism for letter-feeding the carriage, a universal bar for actuating the escapement mechanism, letter-feeding type-keys which actuate the universal bar, a silent type-key which depresses said universal bar when operated, means for holding said bar depressed to prevent actuation of said escapement mechanism, said means comprising a substantially horizontal, pivotally mounted bell-crank, and a cam-lug carried by said silent type-key and engaging one arm of said bell-crank for moving the other arm of said bell-crank forwardly into locking engagement with the universal bar when the silent type-key has been operated to depress the universal bar, a slide member comprising a transverse rod and connected to said forwardly moving arm, and a cam-lug carried by each of said letter-feeding type-keys and engaging said rod when said letter-feeding type-keys are depressed for moving said slide member and the connected bell-crank arm rearwardly to unlock said universal bar.

12. In a typewriting machine, the combination with a frame and a traveling carriage, of an escapement mechanism for letter-feeding the carriage, a universal bar for actuating the escapement mechanism, letter-feeding type-keys which actuate the universal bar, a silent type-key which depresses said universal bar when operated, means for holding said bar depressed to prevent actuation of said escapement mechanism, said means comprising a substantially horizontal, pivotally mounted bell-crank, and a cam-lug carried by said silent type-key and engaging one arm of said bell-crank for moving the other arm of said bell-crank forwardly into locking engagement with the universal bar when the silent type-key has been operated to depress the universal bar, a slide member comprising a transverse rod and connected to said forwardly moving arm, a cam-lug carried by each of said letter-feeding type-keys and engaging said rod when said letter-feeding type-keys are depressed for moving said slide member and the connected bell-crank arm rearwardly to unlock said universal bar, a detent spring for engaging said rod to hold said slide member and its connected bell-crank arm in forward position, and a second detent spring for engaging said rod to hold said slide member and its connected bell-crank arm in rearward position.

13. In a typewriting machine, the combination with a frame and a traveling carriage, of an escapement mechanism for letter-feeding the carriage, a universal bar for actuating the escapement mechanism, letter-feeding type-keys which actuate the universal bar, a silent type-key which depresses said universal bar when operated, means for holding said bar depressed to prevent actuation of said escapement mechanism, said means comprising a substantially horizontal, pivotally

mounted lever, and means carried by said silent type-key for moving one end of said lever forwardly into locking engagement with the universal bar when the silent type-key has been operated to depress the universal bar, a slide member connected to said forwardly moving end, means carried by said letter-feeding type-keys and engaging said slide member when said letter-feeding type-keys are depressed for moving said slide member and lever rearwardly to unlock said universal bar, and means for guiding said slide member in its movement.

14. In a typewriting machine, the combination with a frame and a traveling carriage, of an escapement machanism for letter-feeding the carriage, a universal bar for actuating the escapement mechanism, letter-feeding type-keys which actuate the universal bar, a silent type-key which depresses said universal bar when operated, means for holding said bar depressed to prevent actuation of said escapement mechanism, said means comprising a substantially horizontal, pivotally mounted bell-crank, and a cam-lug carried by said silent type-key and engaging one arm of said bell-crank for moving the other arm of said bell-crank forwardly into locking engagement with the universal bar when the silent type-key has been operated to depress the universal bar, a slide member comprising a transverse rod and connected to said forwardly moving arm, a cam-lug carried by each of said letter-feeding type-keys and engaging said rod when said letter-feeding type-keys are depressed for moving said slide member and the connected bell-crank arm rearwardly to unlock said universal bar, and means for guiding said slide member in its movement, said means comprising rock-arms mounted on said machine and having slotted ends engaging said rod.

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Witnesses:

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EDITH B. LIBBEY.