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B. C. STICKNEY

TYPEWRITING MACHINE

Filed April 28. 1922

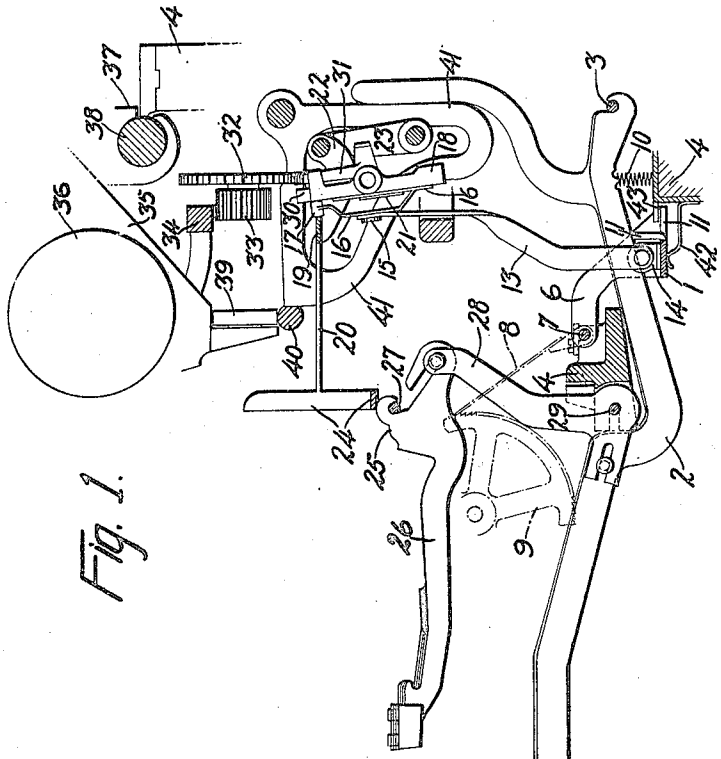

Fig. 1.

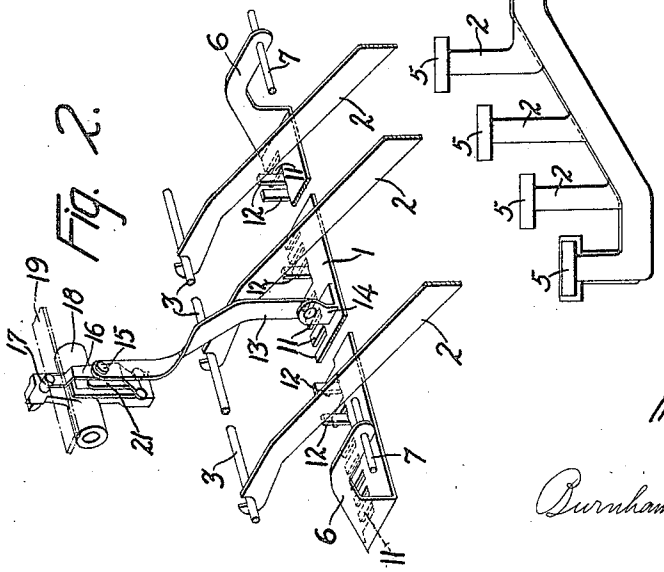

Fig. 2.

Inventor:

Burnham & Stickney

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UNITED STATES PATENT OFFICE.

BURNHAM C. STICKNEY, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPEWRITING MACHINE.

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To all whom it may concern:

Be it known that I, BURNHAM C. STICKNEY, a citizen of the United States, residing in Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Typewriting Machines, of which the following is a specification.

This invention relates to silent-key devices for typewriting machines.

An important object of the present invention is to produce a silent-key device which will conveniently enable any desired number of the type-keys to be made silent-keys; and also to provide for having any silent-key located wherever desired in the keyboard. Another object of the invention is to produce a silent-key device which is simple in construction, inexpensive to manufacture, and which may be readily installed in typewriting machines without the necessity of making any substantial changes therein.

The invention provides means for silencing the usual escapement mechanism when a silent-key is operated, and includes a cross-bar forming a silencing-bar universal to the type-key-levers, said bar being provided with bendable teeth or tongues, each of which, by reason of its bendability, may occupy a position in the path of the type-key-lever, to be engaged thereby to operate said bar for silencing the escapement mechanism, or may occupy a position to escape the type-key-lever so that the latter will be ineffective to operate said bar and will therefore be effective to operate the escapement mechanism for letter-feeding the carriage, there being as many of said teeth or tongues as there are type-key-levers so that any of the type-keys to any desired number may be made silent-keys.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a front-to-rear vertical section, partly diagrammatic and with parts omitted, of a standard Underwood typewriting machine having the present invention embodied therein.

Figure 2 is a perspective view of parts involved in the present invention which appear in Figure 1.

Although, in the accompanying drawings, the present invention is shown as embodied in a standard Underwood typewriting machine it is understood that it may be embodied in, or may be adapted to be embodied in, other typewriting machines. The illustrated embodiment of the invention, providing for the employment of as many silent-keys as may be desired, and to be located wherever desired in the keyboard, comprises a depressible silencing-bar 1 extending transversely across the machine in spaced relation beneath, and forwardly of the pivots of, the usual key-levers 2, pivoted at their rear ends upon a rod 3 mounted in the machine-frame 4, and carrying at their forward ends the usual type-keys 5. The silencing-bar 1 may be conveniently formed of suitable sheet-metal and, in the form of the invention shown in the drawings, forms the cross-bar of a rocking bail having upwardly and forwardly extending arms 6, shown as formed in one piece with the cross-bar 1, and pivoted at their forward ends on a transverse rod or shaft 7 mounted in the machine-frame 4 forwardly of the key-lever pivot-rod 3 and of the silencing-bar 1. In the construction shown in the drawings, the pivot-providing rod or shaft 7 is the usual ribbon-feeding rock-shaft carrying pawls, such as 8, for rotating the usual ribbon-winding ratchet-wheels, such as 9. The depressible key-levers 2 may be returned to their upper positions by means of the usual compression-springs 10. The main or transversely-extending body-part of the silencing-bar 1 is sufficiently below the key-levers 2 so as not to be struck thereby. In order to depress the silencing-bar 1, by means of silent-keys, of any desired number inserted in the machine, at any desired places in the keyboard, the sheet-metal silencing-bar 1 has deep notches cut in the rear edge or margin thereof, to provide as many bendable teeth or tongues 11 as there are type-key-levers 2, these teeth or tongues being spaced to agree with the spacing of the type-key-levers and located in alignment therewith, so that each type-key-lever has a tooth or tongue 11 individual thereto. The silencing-bar 1 is first manufactured with all of its teeth or tongues 11 projecting horizontally in alignment with the flat bar, in the form of a comb. A tooth or tongue 11 is bent to an upright position at each point where it is desired to insert the key-lever of a silent-

key, as shown at 12 in both figures of the drawings, thereby to be in the path of, so as to be struck by, any of the key-levers 2 belonging to the silent-keys, so that the silencing-bar 1 will be depressed when any silent-key is operated.

When the silencing-bar 1 is depressed, it pulls downward upon a link 13, pivoted at its lower end to a lug 14, secured upon the top of the silencing-bar 1, and at its upper end the link 13 is connected at 15 to an interponent 16. At its upper end the interponent 16 carries a head 17, and, in the normal or effective position of the interponent 16, shown in the drawings, the interponent-head 17 is interposed between the upper end of a dog-rocker 18 and a tappet-forming bar 19 forming the rear end of a universal-bar-frame 20, for transmitting carriage-feeding movement from the frame 20 to the dog-rocker 18 when a letter-feeding type-key is operated. The interponent 16 is slidably mounted at 21 upon the front face of the dog-rocker 18, and when the interponent is drawn downwardly the interponent-head 17 will be withdrawn from its effective position, shown in the drawings, to a lower ineffective position, out of the path of the tappet-bar 19, so that it will then be unable to transmit carriage-feeding movement from the universal-bar-frame 20 to the dog-rocker 18. The interponent will be drawn downwardly by the key-lever 2 of any silent-key, of which one is shown at the front in Figure 1, and of which three are shown in Figure 2. Also, in Figure 2, it will be noted that there are two additional bent-up teeth or tongues 12, thereby providing for two more silent-keys, which would make in all five silent-keys in the particular machine shown in the drawings, the remaining keys corresponding to the unbent teeth or tongues 11 being ordinary letter-feeding type-keys.

It will be seen that, in manufacturing the silent-key device of the present invention, all of the devices may be made alike, regardless of the number of or location of the silent-keys in any particular machine upon which a silent-key device is to be installed, it only being necessary to bend up the appropriate teeth or tongues 11 to form the upstanding teeth or tongues 12, insert the silencing-bar 1 in the machine, and connect it by means of the link 13 to the interponent 16.

At its rear end the universal-bar-frame 20 is provided with extensions 22, only one of which is shown, by which it is supported upon the usual rocking frame 23. At its forward end the universal-bar-frame 20 carries a usual arcuate universal bar 24 in the path of shoulders 25 on the type-bars 26, pivoted at 27 and connected to the type-key-levers 2 by means of the usual bell-crank-levers 28, pivoted at 29 on the machine-frame.

The dog-rocker 18 forms part of the usual escapement mechanism and is provided with fixed and loose dogs 30 and 31, alternately engageable with an escapement-wheel 32, which may have a usual one-way connection to a pinion 33, which engages a releasable carriage-feeding rack 34, mounted upon a platen-frame 35, carrying a revoluble platen 36, and forming part of a carriage 37, which may travel upon a rear carriage-rail 38 and upon a front carriage-rail (not shown). Also, the platen-frame 35 is provided with a roller 39 to travel along a shift-rail 40, carried by the usual rockable shift-frame 41. Letter-feeding traveling movement may be imparted to the carriage 37 by means of the usual spring-drum (not shown).

A spring 42, shown as a leaf-spring, secured to the machine-frame, is provided to raise the silencing-bar 1 after it has been depressed by a silent-key, and a stop 43 is provided on the frame to check the upward movement of the silencing-bar. The stop 43 may be located adjacent one of the bail-arms 6, in order to leave the teeth 11 free, and another similar stop (not shown) may be provided adjacent the other bail-arm. Also, in addition to the lift-spring 42, for the silencing-bar 1, a separate lift-spring (not shown) may be provided to assist in raising the interponent 16 from its ineffective to its effective position. Also, it is to be understood that the usual return-springs (not shown) are provided for the dog-rocker 18, its loose dog 31, and for the universal-bar-frame 20.

The operation of the silent-key device of the present invention has been hereinbefore fully described in connection with the description of the construction thereof, so that there is no need for separately describing the operation.

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 a traveling carriage, an escapement mechanism therefor, type-keys, and means for operating the escapement mechanism from the type-keys, the combination of means for silencing the escapement mechanism including a bar universal to the type-keys and provided with bendable teeth or tongues individual to corresponding type-keys, and capable of occupying a position to cause the type-keys to operate said bar for silencing the escapement mechanism, and capable of occupying another position in which the type-keys are ineffective to operate said bar, whereby selected type-keys may silence the

escapement mechanism and other selected type-keys may be effective to operate the escapement mechanism.

2. In a typewriting machine, the combination with a traveling carriage, an escapement mechanism therefor, type-keys, and means operable by the type-keys to operate the escapement mechanism, of means for silencing the escapement mechanism including a bar universal to the type-keys and provided with bendable teeth or tongues individual to and corresponding in number with the type-keys, each said tooth or tongue being capable of occupying a position to cause the type-keys to operate said bar for silencing the escapement mechanism, or of occuppying a position in which the type-keys are ineffective to operate said bar, whereby selected type-keys may silence the escapement mechanism and other selected type-keys may be effective to operate the escapement mechanism.

3. In a typewriting machine, the combination with a traveling carriage, an escapement mechanism therefor, type-key-levers, and means operable by the type-key-levers to operate the escapement mechanism, of means for silencing the escapement mechanism comprising a bar universal to the type-key-levers and provided with teeth or tongues bendable into the path of the type-key-levers in the typing movement of the latter to cause selected type-key-levers to operate said bar, while other of said teeth or tongues may remain out of the path of other type-key-levers to render the latter ineffective to operate said bar, and a device operable by said bar to silence the escapement mechanism when said bar is operated.

4. In a typewriting machine, the combination with a traveling carriage, an escapement mechanism therefor, type-key-levers and means operable by the type-key-levers to operate the escapement mechanism, of means for silencing the escapement mechanism comprising a bar universal to the type-key-levers and provided with as many bendable teeth or tongues as there are type-key-levers, said teeth or tongues being capable of occupying a position in the path of selected type-key-levers in the typing movement of the latter to cause said selected type-key-levers to operate said bar, while the remaining teeth or tongues may remain out of the path of the remaining type-key-levers to render the latter ineffective to operate said bar, and a device operable by said bar to silence the escapement mechanism when said bar is operated.

5. In a typewriting machine, the combination with a traveling carriage, an escapement mechanism for the carriage, depressible type-key-levers, and means operable by the type-key-levers to operate the escapement mechanism, of a depressible bar universal to and extending transversely beneath the type-key-levers, bendable teeth or tongues on said bar capable of being bent into the path of selected type-key-levers as these levers move downwardly in the typing operation, so as to cause said selected type-key-levers to depress said bar while other type-key-levers are ineffective to depress said bar, and means operable by said bar to silence the escapement mechanism when said bar is depressed.

6. In a typewriting machine, in combination, a traveling carriage, an escapement mechanism therefor including a dog-rocker, downwardly movable type-key-levers, a universal bar operable by the type-key-levers, a normally effective interponent for transmitting carriage-feeding movement from the universal bar to the dog-rocker, and means for withdrawing the interponent to ineffective position comprising a downwardly movable transverse bar extending below and universal to the type-key-levers, said bar being provided with as many bendable teeth or tongues as there are type-key-levers, said teeth or tongues being capable of occupying an upper position in the path of the type-key-levers to cause said bar to be depressed by the type-key-levers to withdraw the interponent to ineffective position, said teeth or tongues also being capable of occupying a lower position out of the path of the type-key-levers to permit the interponent to remain in its effective position, whereby selected type-keys may cause the escapement mechanism to be silenced, and the remaining type-keys may operate the escapement mechanism to feed the carriage.

7. In a typewriting machine, the combination with a frame, a traveling carriage, an escapement mechanism for the carriage, depressible type-key-levers, and means operable by the type-key-levers to operate the escapement mechanism, of means for silencing the escapement mechanism comprising a depressible bar universal to and extending transversely beneath said type-key-levers, bail-arms pivoted on the frame and carrying said bar, said bar being provided with tongues or teeth individual to the type-key-levers and bendable into the path of the type-key-levers in the typing movement of the latter to cause selected type-key-levers to depress said bar while other type-key-levers are ineffective to depress said bar, and a device operable by said bar to silence the escapement mechanism when said bar is depressed.

8. In a typewriting machine, the combination with a frame, a traveling carriage, an escapement mechanism for the carriage, depressible type-key-levers pivoted at their rear ends on the frame, means operable by the type-key-levers to operate the escapement mechanism, and a ribbon-feeding shaft extending transversely of the frame for-

wardly of the pivots of the type-key-levers, of means for silencing the escapement mechanism comprising a bail having arms pivoted on said shaft and including a cross-bar beneath and universal to the type-key-levers, said cross-bar being provided with bendable tongues or teeth which may occupy an upper position in the path of selected type-key-levers to cause said selected type-key-levers to depress said cross-bar, said tongues or teeth being also capable of occupying a lower position out of the path of the type-key-levers so that said cross-bar will not be depressed thereby, and a device operable by said cross-bar to silence the escapement mechanism when said bar is depressed, whereby selected type-keys may cause the escapement mechanism to be silenced and the remaining type-keys may operate the escapement mechanism to feed the carriage.

9. In a typewriting machine, the combination with a traveling carriage, an escapement mechanism therefor, type-key-levers, and means operable by the type-key-levers to operate the escapement mechanism, of means for silencing the escapement mechanism including a sheet-metal bar universal to the type-key-levers and having notches cut in one of its edge margins providing bendable teeth or tongues in one piece with said bar individual to and corresponding in number with the type-key-levers, each said tooth or tongue by reason of its bendability being capable of occupying a position in the path of the corresponding type-key-lever to be engaged thereby to cause said type-key-lever to operate said bar for silencing the escapement mechanism, or of occupying a position out of the path of the corresponding type-key-lever to render the latter ineffective to operate said bar, whereby selected type-keys may silence the escapement mechanism and the remaining type-keys may be effective to operate the escapement mechanism.

10. In a typwriting machine, the combina- with a traveling carriage, an escapement mechanism for the carriage, depressible type-key-levers, and means operable by the type-key-levers to operate the escapement mechanism, of a depressible sheet-metal bar universal to and extending transversely beneath the type-key-levers, said bar having notches cut in one of its edge margins to provide in one piece with said bar bendable teeth or tongues individual to and corresponding in number with the type-key-levers, each said tooth or tongue projecting substantially horizontally in alignment with but out of the path of the corresponding type-key-lever when the latter is depressed, and each said tooth or tongue being bendable to an upright position in the path of the corresponding type-key-lever to be engaged thereby to depress said bar when the type-key-lever is depressed, and means operable by said bar to silence the escapement mechanism when said bar is depressed, whereby selected type-keys may silence the escapement mechanism and the remaining type-keys may be effective to operate the escapement mechanism.

BURNHAM C. STICKNEY.

Witnesses:
JENNIE P. THORNE,
CATHERINE A. NEWELL.