H. F. WADE.

UNDERSCORING ATTACHMENT FOR TYPE WRITERS.

APPLICATION FILED OCT. 2, 1915.

1,216,189.

Patented Feb. 13, 1917.

2 SHEETS—SHEET 1.

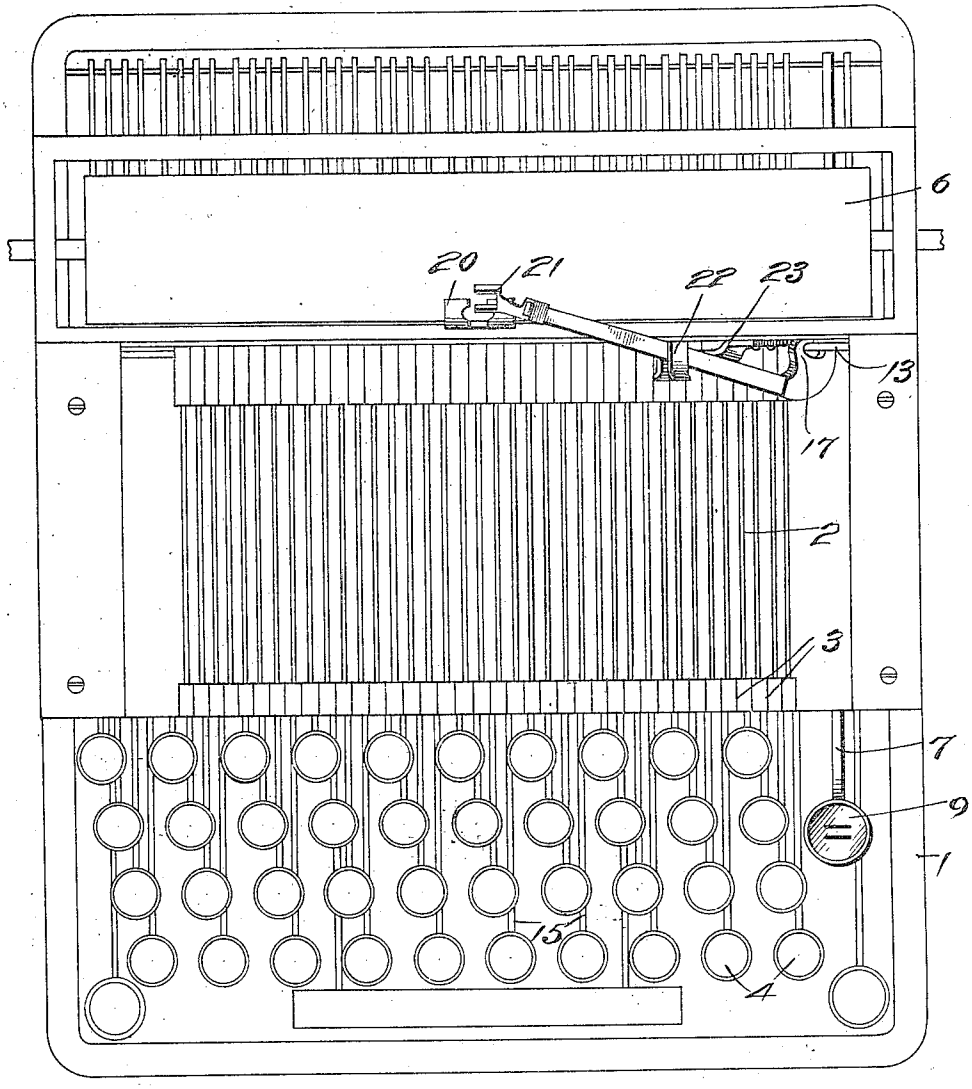
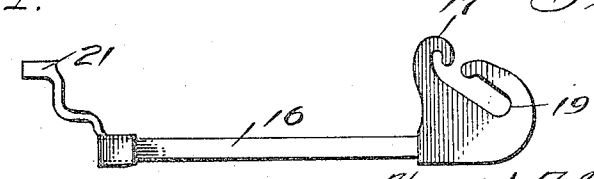


Fig. 1.

Fig. 4.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

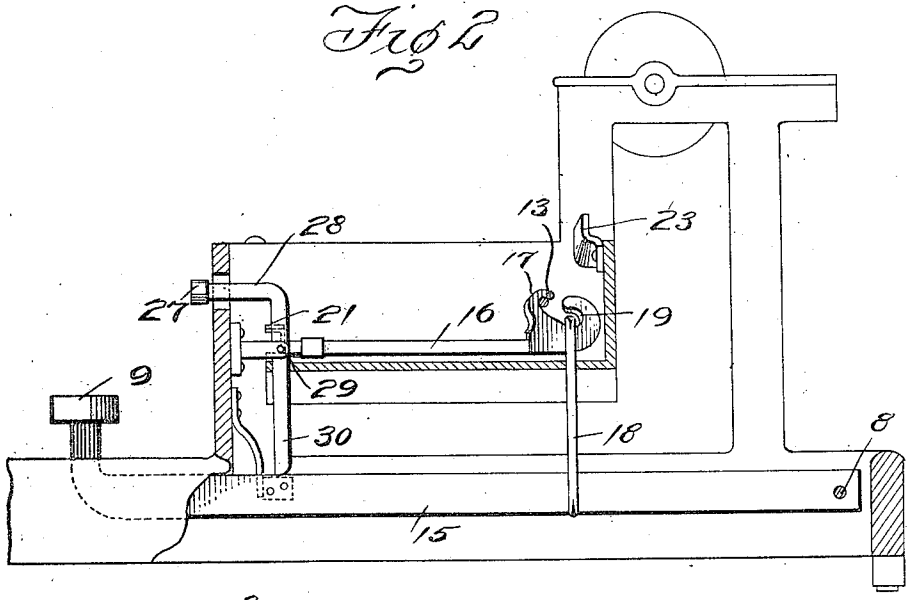


Fig. 5.

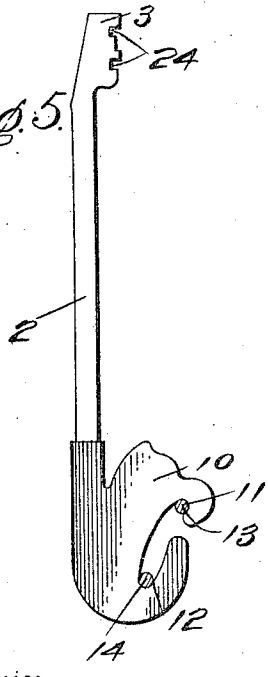
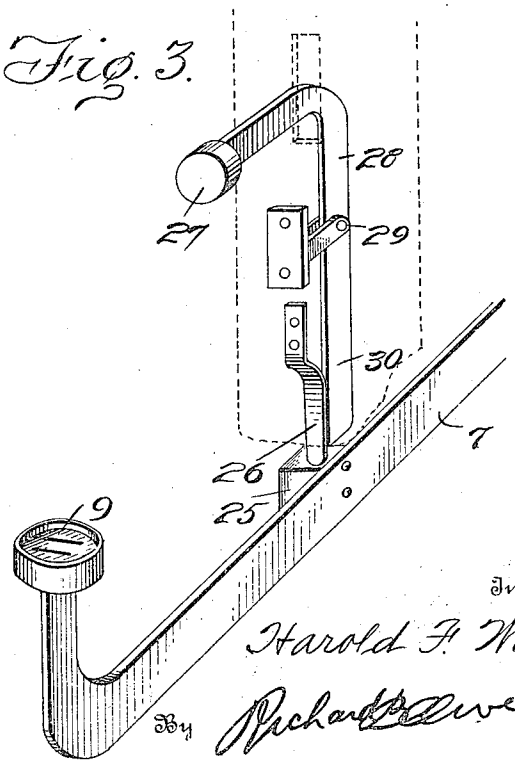


Fig. 3.



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UNDERSCORING ATTACHMENT FOR TYPE-WRITERS.

1,216,189. Specification of Letters Patent. Patented Feb. 13, 1917.

Application filed October 2, 1915. Serial No. 53,807.

To all whom it may concern:

Be it known that I, HAROLD F. WADE, a citizen of the United States, residing at Opportunity, in the county of Spokane and State of Washington, have invented certain new and useful Improvements in Underscoring Attachments for Type-Writers, of which the following is a specification.

An object of my invention is to provide an attachment for typewriters, consisting of a separate underlining character, together with means to operate the same independently of the operation of the remaining portions of the mechanism.

A further object is to construct the parts in a manner that the underlining character may be brought to a set position in a relation that as the letter or other character desired to be underlined is brought to the printing position, the underlining character is simultaneously given printing contact.

Yet another object is in the provision of a locking means to be brought into operative relation upon shifting of the underlining character to the printing position to hold the same in a position to be operated upon printing of the letter characters, until manually released.

A still further object is to arrange the parts in such a manner that the operation of the underlining character will be equally efficient in the use of the letter keys in either the lower case or the shift positions.

With other objects in view, which will be referred to, my invention consists in the particular construction and novel arrangement of parts which will hereinafter be described in connection with the accompanying drawings and more particularly pointed out in the appended claims.

In the drawings—

Figure 1 is a diagrammatic plan view of a standard typewriting machine with my invention applied thereto.

Fig. 2 is a diagrammatic sectional view through the disclosure in Fig. 1 to better illustrate the arrangement of the operative parts.

Fig. 3 is a fragmentary perspective view of the means for locking and retaining the device in the operative relation.

Fig. 4 is a detail view of the character carrying bar.

Fig. 5 is a view similar to Fig. 4 of one of the type carrying bars of the machine showing slight modifications which it may be necessary to make therein.

In the adaptation of the invention as illustrated in the accompanying drawings, a machine constructed along the lines of the standard Underwood typewriter is disclosed, although it will be understood that this is only one type of machine to which my invention may be applied and with which the same may be used.

The machine comprises the frame 1, in which the type bars 2 carrying the type characters 3 are mounted in the usual manner to be operated by the operating keys 4. The platen 6 is mounted in the usual manner, and as all of these parts are of standard form and arrangement, the same are illustrated only diagrammatically in the drawings accompanying this application.

Preferably at one end of the frame 1 an additional operating bar 7 is mounted pivoted on the support 8 by which the remaining bars are pivotally mounted in the machine, and this operating bar has the free end thereof extended upwardly and provided with the operating key 9 which is conveniently placed in the key board of the machine. In the form of machine illustrated, the type bars 2 have the bases 10 thereof provided with the double hooked formation by which the sockets 11 and 12 are formed, and these type bars are placed on the mounting wire 13 by having the same positioned within the sockets 11, links 14 being positioned in the sockets 12 and connected with the operating bars 15 of the operating keys 4. At a point adjacent the positioning in the frame of the operating bar 7, an additional character carrying bar 16 is mounted by having the mounting wire 13 received in the socket 17 of the base thereof, and this carrying bar 16 is operatively connected with the operating bar 7 by a link 18 which is looped over the bar 7 and through the socket 19 of the base of the character carrying bar.

The usual ribbon guide 20 is provided on the machine adjacent the platen roll 6 on which the paper is carried, and the character carrying bar 16 has the underscoring type 21 fitted to the free end thereof and constructed in a manner to fit and be received between the side members of the ribbon guide 20. As is better illustrated in Fig. 1, the underscoring type is made with a double face, that is, this type is provided with two underscoring characters, one of which is positioned to be operated when the typewriter is printing in lower case and the

second character to be operated when the upper case is being used. A guide 22 is mounted on the frame of the machine to receive the character carrying bar 16 as the operating key 9 is depressed and to cause the proper centering of the underscoring type 21 between the side members of the ribbon guide 20, and a light spring 23 is mounted on the frame to be bowed therefrom and to be engaged in the bowed or free portion by the inner edge of the character carrying bar 16 as this bar is actuated to bring the underscoring character to the operative position, to cause a slight return movement of the bar 16 and to thus raise the underscoring character 21 from a printing engagement against the ribbon.

With the mechanism as hereinbefore described, it is possible to underscore any of the type characters which may be printed in either upper or lower case by the machine subsequent to the printing thereof, and as no connection is provided between the operating bar or the character carrying bar to the carriage shift, this underscoring of the type character does not move the machine from a position to have the next type character printed run in the proper reading sequence. As hereinbefore stated, it is one of the objects of my invention to so construct the underlining mechanism that the same will operate simultaneously with the printing of the type characters, and to this end, the underscoring characters are made comparatively thin in their transverse extent from the printing faces, and the faces of the type characters 3 are provided with the transverse notches 24 to fit over these type characters and at the same time to permit proper and a sufficient equal engagement of the type characters against the ribbon to accomplish a printing action. That the underscoring characters will be retained in a position between the side members of the ribbon guide 20 to be engaged as the various type characters 3 are brought to the printing relation, the operating lever has a lug 25 formed to extend from one side thereof and a retaining spring 26 is mounted on the frame adjacent the formation of this lug to have one end thereof free to engage with the upper face of the lug 25 as the operating bar 7 is depressed and to thus hold the underscoring character at a position between the side members of the ribbon guide 20, where the characters are held from contact with the ribbon by the spring 23, and then as the operating keys 4 are struck to bring the type characters 3 to the printing relation, the underscoring characters are engaged in the notches 24 and the underscoring characters are carried forward with the type character to print simultaneously therewith. When it is desired to release the underscoring means, the release key 27 carried by the swinging lever 28 is pressed, and as this lever 28 is pivoted at 29 to the frame and as the free end 30 thereof is engaged with the free end of the spring 25, rocking of the lever 28 about this point of pivot 29 causes the end 30 to displace the spring 26 from its position of retention upon the top of the lug 25 and the underscoring character carrying bar 16 returns to its normal position.

The attachment may be used to print a single underscoring character subsequent to the printing of any one of the type characters without displacing the carriage shift, and by operating the release key 27, the parts are restored to normal, or as has been hereinbefore set forth, the underscoring operating key 9 may be depressed to a position where the retaining spring 26 becomes operative, and with the parts in this relation, the standard characters may be printed and underscored simultaneously and when the lower case characters are used, the lower of the two underscoring characters will be engaged in the lower notch 24 of the type characters 3; then as the shift key of the typewriter is operated to set the machine to print the upper case characters, the upper underscoring character 21 will be brought to the operative relation, and an equally efficient result will be obtained.

While I have herein shown and described one specific form of my invention, it will be understood that slight changes might be resorted to in the formation and arrangement of parts without departing from the spirit and scope of the invention as claimed, and hence I do not wish to be limited to the exact construction and details herein described in the specification.

What is claimed is:

1. An underscoring attachment for typewriters comprising means to be operated independently of and to be operated simultaneously with the remaining type characters of the machine by receiving operating impulses therefrom to produce underscore characters.

2. An underscoring attachment for typewriters comprising an underscoring type character with means to bring the character independently into operation, and means to hold said underscoring character in a position to receive operating impulses from the printing blow of the remaining type characters to print upon actuation of the remaining type characters.

3. An underscoring attachment for typewriters comprising an underscoring type character with means to bring the character independently into operation, means to hold said underscoring character in a position to be struck by the remaining type characters upon movement of the same to a printing position and to print upon actuation of the

remaining type characters, and means to release said holding means to allow the underscoring character to return to the inoperative position.

4. An underscoring attachment for typewriters of standard design comprising an additional character carrying bar, an underscoring character mounted on said bar, and means for operating said bar to bring the character to a position to be printed independently of the remaining type characters and also to be simultaneously actuated with and to be printed upon actuation of the remaining type bars.

5. An underscoring attachment for typewriters of standard design comprising an additional character carrying bar, an underscoring character mounted on said bar, means for operating said bar to bring the character to a position to be printed upon actuation of the remaining type bars, and means to retain the underscoring character in the proper operative position to be struck and moved by the remaining type characters as the same are brought to a printing relation to print simultaneously with the printing of the type characters carried by the type bars actuated.

6. An underscoring attachment for typewriters of standard design comprising an additional character carrying bar, an underscoring character mounted on said bar, means for operating said bar to bring the character to a position to independently print the underscoring character, means to retain the underscoring character in the proper operative position to receive a printing blow upon actuation of the remaining type characters to print simultaneously with the printing of the type characters carried by the type bars actuated, and means to release the retaining means and permit movement of the underscoring character to the inoperative position.

7. An underscoring attachment for typewriters of standard design comprising an additional character carrying bar, an underscoring character mounted on said bar, means to move said bar to bring the underscoring character to a printing contact, means to return said character carrying bar to a position that the underscoring character is moved from printing contact, and means to retain the character carrying bar in a relation to be struck by portions of the remaining character printing means and brought to a printing relation to thus be printed simultaneously with the remaining characters.

8. An underscoring attachment for typewriters of standard design comprising an additional character carrying bar, an underscoring character mounted on said bar, means to move said bar to bring the underscoring character to a printing contact, means to return said character carrying bar to a position that the underscoring character is moved from printing contact, and resilient means to retain said character carrying bar in a relation that the underscoring character is printed simultaneously with the remaining type characters of the machine, and means to disengage said resilient means from the operative relation to bring said underscoring means to an inoperative position.

9. An underscoring attachment for typewriters of standard design comprising an additional character carrying bar, underscoring type characters mounted on said bar, an operating key mounted in the key board and connected with said carrying bar to bring the underscoring character independently to a printing contact upon movement of said key, means to hold said carrying bar with the underscoring character thereof at a point adjacent the printing position, the remaining type characters of the machine formed to interfit with said underscoring character, and all of said parts so arranged that upon setting of the parts as described and actuation of the machine to print the type characters the underscoring characters are printed simultaneously therewith.

10. An underscoring attachment for typewriters of standard design comprising an additional character carrying bar, underscoring type characters mounted on said bar, an operating key mounted in the key board and connected with said carrying bar to bring the underscoring character to the operative position upon movement of said key, means to hold said carrying bar with the underscoring character thereof at a point adjacent the printing position, the remaining type characters of the machine formed to interfit with said underscoring character, all of said parts so arranged that upon setting of the parts as described and actuation of the machine to print the type characters the underscored characters are printed simultaneously therewith, and resilient means to engage with said carrying bar to hold the underscoring character normally in an inoperative relation when said bar is swung to the raised position, and means to release the retaining means to permit movement of the parts to the inoperative relation.

In testimony whereof I affix my signature in presence of two witnesses.

HAROLD F. WADE.

Witnesses:
JOHN HAUSFELD,
OSCAR REIVEWES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."