

Feb. 6, 1962

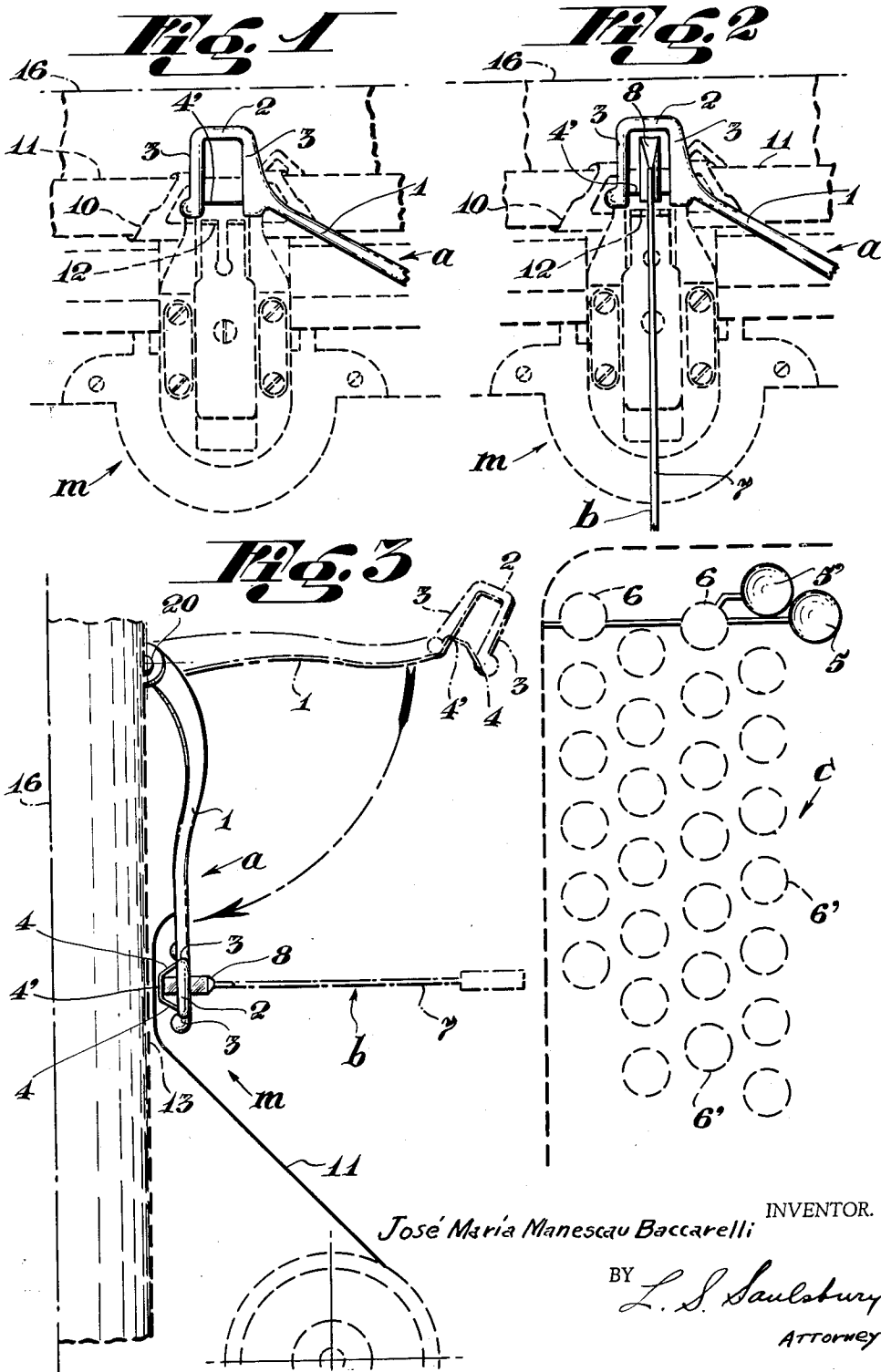
J. M. M. BACCARELLI

3,019,880

UNDERLINING DEVICE FOR TYPEWRITER MACHINES

Filed Oct. 13, 1959

4 Sheets-Sheet 1



Feb. 6, 1962

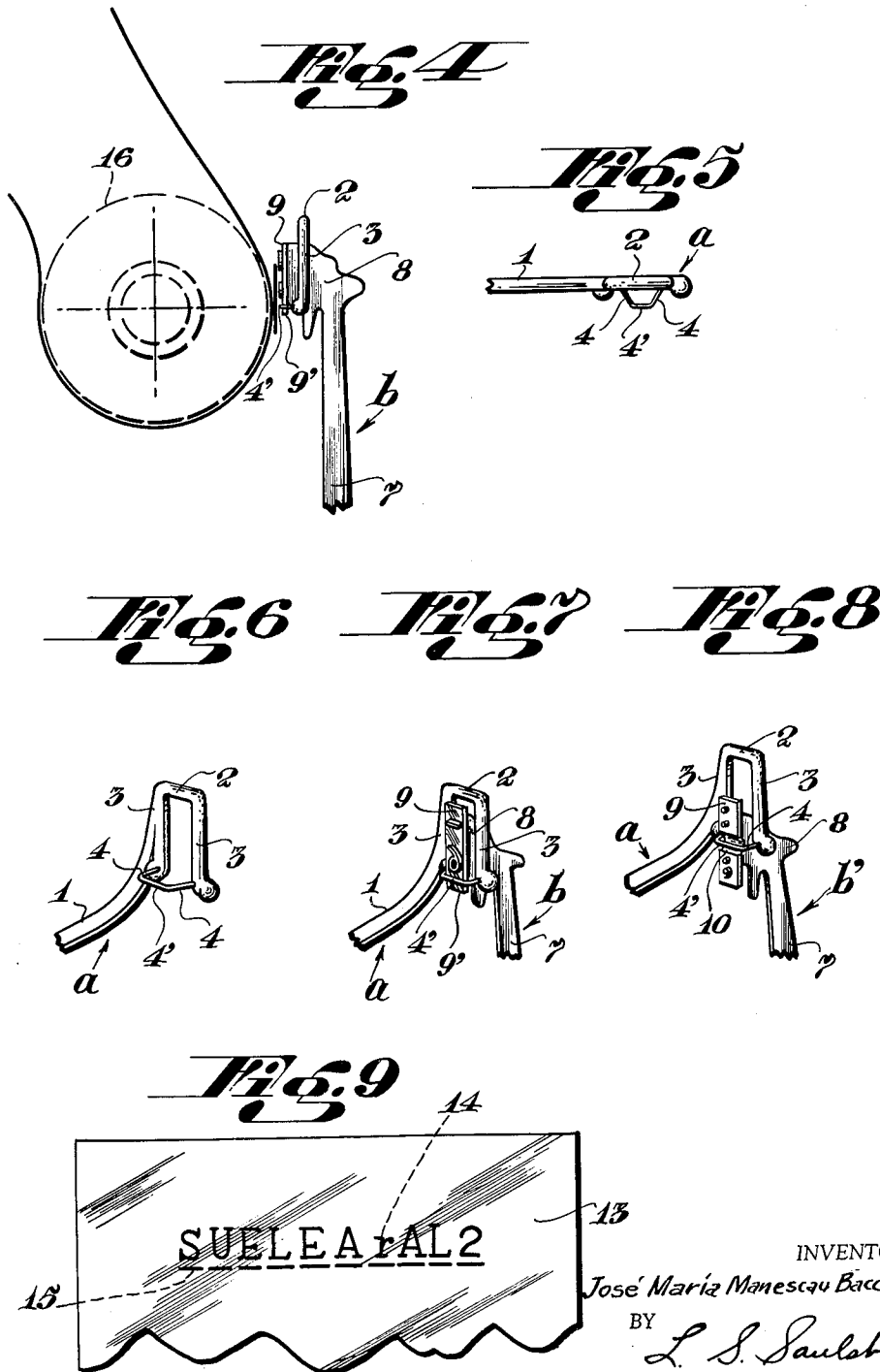
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4 Sheets-Sheet 2



INVENTOR.

Jose' Maria Manescau Baccarelli

BY

L. S. Saulsbury

Attorney

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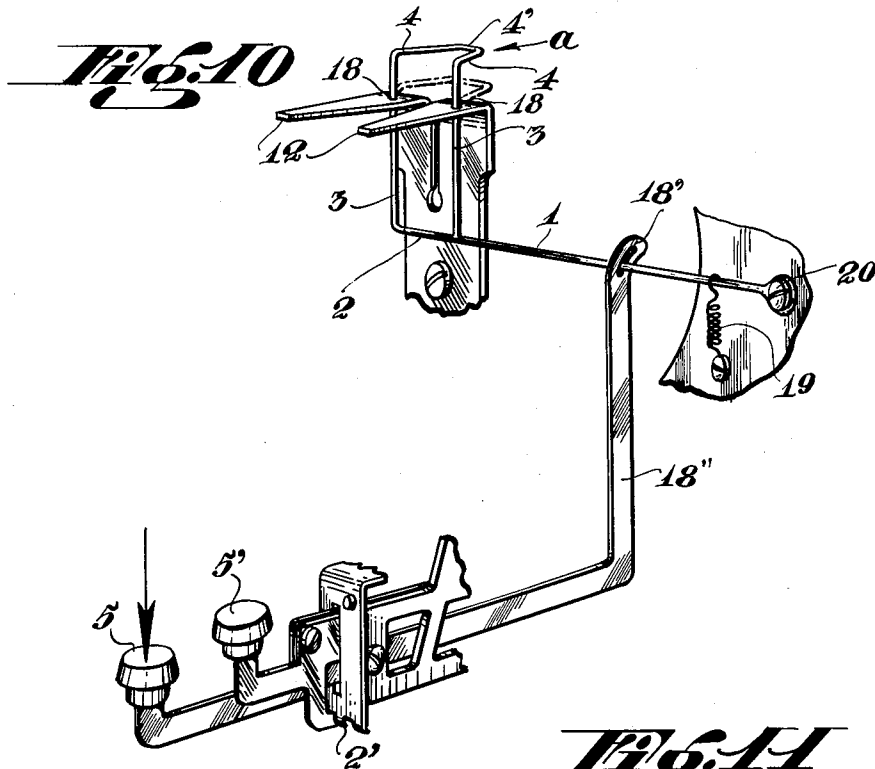
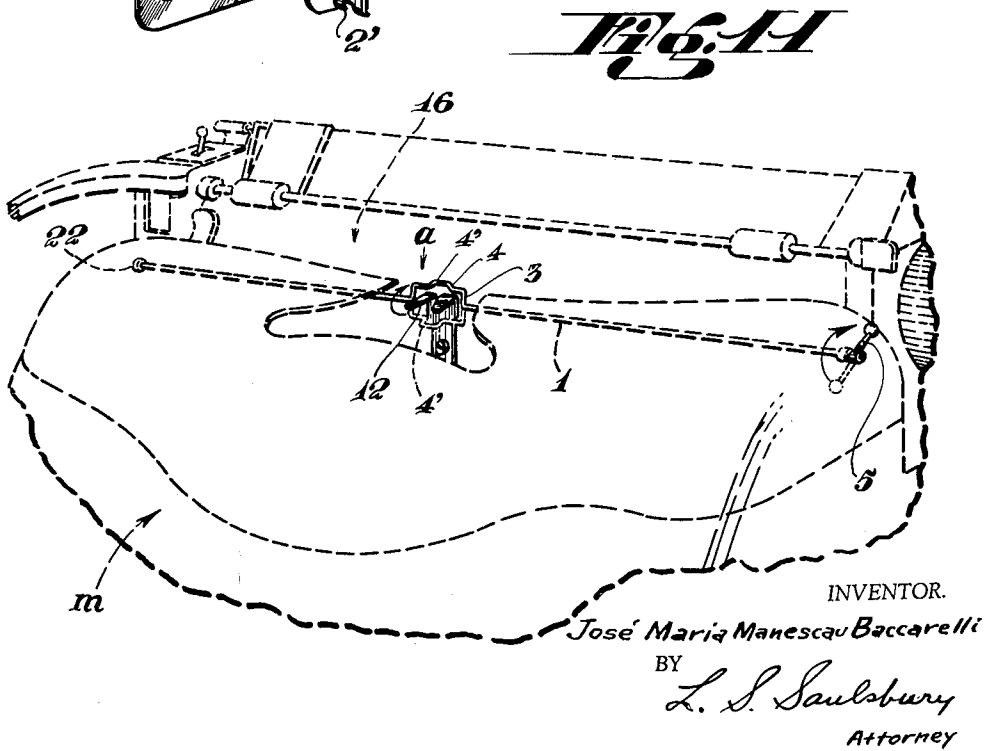
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4 Sheets-Sheet 3



INVENTOR.

Jose Maria Manescau Baccarelli

BY

L. S. Saulsbury

Attorney

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J. M. M. BACCARELLI

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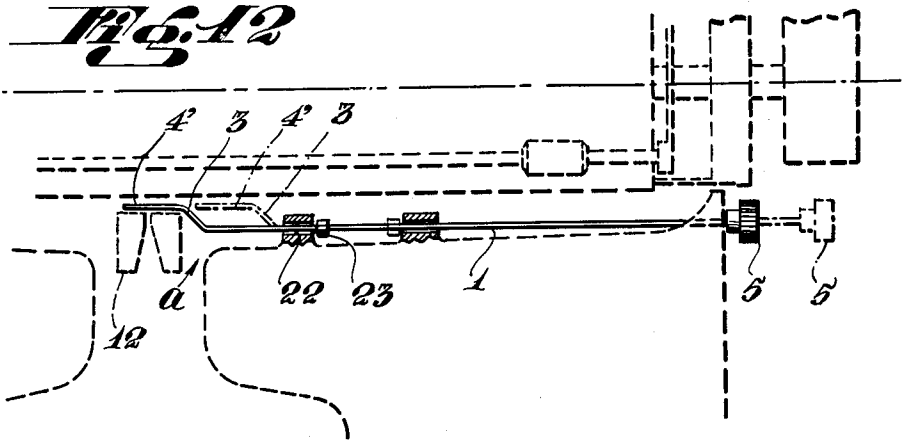


Fig. 13 Fig. 14 Fig. 15

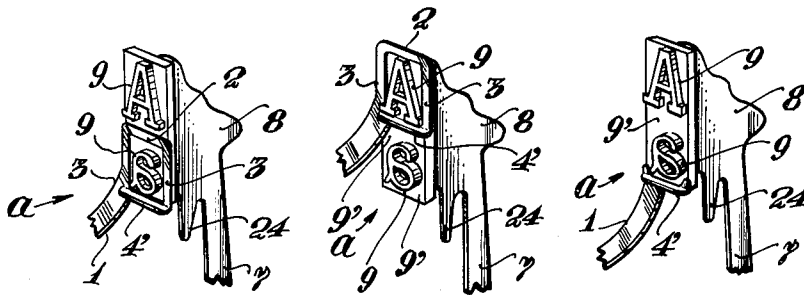
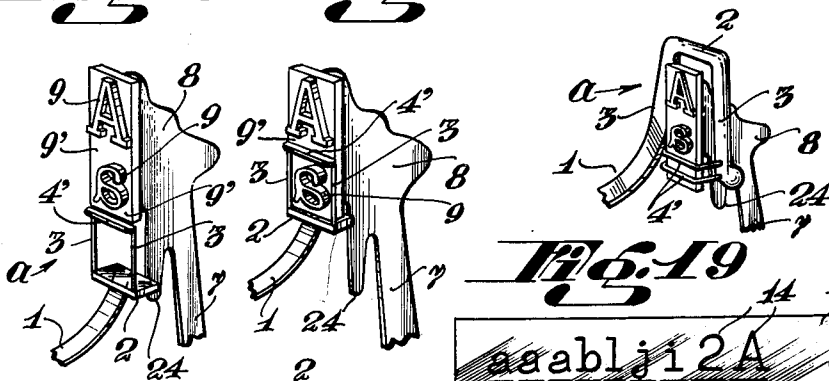
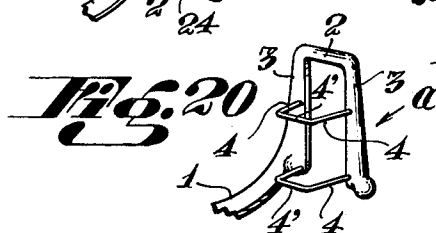
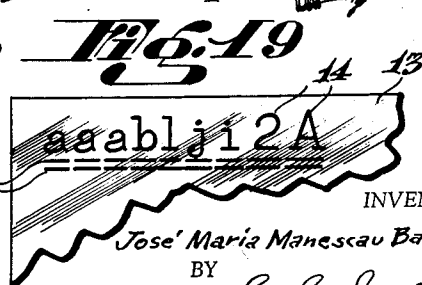


Fig. 16 Fig. 17 Fig. 18



INVENTOR.

Jose' Maria Manescau Baccarelli

BY

L. S. Saulsbury
Attorney

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3,019,880

UNDERLINING DEVICE FOR TYPEWRITER MACHINES

José María Manescau Baccarelli, Presidente Luis Saenz
Pefia 259, Buenos Aires, Argentina
Filed Oct. 13, 1959, Ser. No. 846,133
1 Claim. (Cl. 197—113)

This invention relates to typewriting machines, and more particularly to improvements in typewriting machines, constituted by a novel underlining device capable of being set or released at will, and to a novel underlining device applicable to existing or new typewriting machines.

It is well known that the underlining of any typewritten word or text by the use of the underlining type proper of the known typewriting machines involves a considerable time, regardless of the speed at which the ordinary typewriting is done. In effect, the underlining of a typewritten text involves moving back the carriage by hand to the first character to be underlined and repeatedly hitting the key corresponding to the underlining type until the desired text has been completely underlined. Practical tests made with a modern non-electric typewriter and a competent typist have shown that the underlining of a given text takes twice as much time, or more, as that required to typewrite such text.

The main object of this invention is to provide means by which it is possible to underline a typewritten text simultaneously with the typing of the latter by the actuation of the universal keyboard of the machine.

To this end, in accordance with the present invention the typewriting machine is provided, apart from the usual types corresponding to the letters, figures or other characters, with an additional and novel underlining type having hand-actuated means capable of causing said underlining type to move between an inoperative position and a position in which it will remain opposite the usual typewriter type-guide within the path of the base portion of each of the remaining types, and vice-versa. The novel underlining type may be located in the general type-bar assembly, on the type-guiding yoke, the carriage or a fixed part of the typewriting machine.

The novel underlining type is preferably mounted on an arm terminating in a hook portion from which extends a U-shaped portion (the cross part of which corresponds to the underlining character) capable of receiving the different types actuated from the keyboard, whereby with the underlining type in its operative position, the depression of each key will cause the simultaneous printing by both types, i.e. the letter or other character corresponding to the depressed key and the underlining mark.

A further object of the invention is to make possible the printing of a double underline through the setting of the novel underlining type of this invention and the actuation of the conventional underlining type.

A further object of the invention is to provide means for preventing the underlining of marks such as stops, commas, dieresis, etc., by providing the types corresponding to such marks with a suitable groove capable of receiving the underlining dash portion of the type of this invention, so as to avoid the underlining thereof when the underlining type is set in operative position.

Other objects and advantages of the invention will become apparent in the course of the following detailed description thereof.

In order that the invention may be more clearly understood and readily carried out, some of the preferred embodiments thereof have been illustrated by way of example in the accompanying drawings, in which:

FIG. 1 is a diagrammatic view of an arm carrying the terminal member providing the underlining dash, shown in

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operative position against the type-guiding fork of a typewriting machine.

FIG. 2 is a view similar to FIG. 1 but showing the underlining type being operated by an ordinary type so as to cause the simultaneous printing of both types.

FIG. 3 is a plan view showing the relationship between the supplementary underlining type of this invention and an ordinary type key, the supplementary underlining type being operated in this instance by means of a key included in the general keyboard.

FIG. 4 is a side view of a key arm according to FIG. 2, showing the manner in which the simultaneous printing of the ordinary type and the underline is obtained on the paper.

FIG. 5 is a detailed view of the terminal portion corresponding to the keyboard supplementary arm carrying the U-shaped member of the underlining type.

FIG. 6 is a perspective view of the underlining arm terminal member of FIG. 5, showing the general construction and arrangement of the parts constituting same.

FIG. 7 is a view similar to FIG. 6 but showing the manner in which the U-shaped member receives one of the bodies provided with the usual typewriter types, the lower portion of which abuts the underlining dash.

FIG. 8 is a further perspective view of the arched terminal member of the underlining type arm, showing the relationship between same and one of the usual typewriter types constituted exclusively by certain marks such as the semicolon, the stop, the comma, etc., which are not consistent with the underlining dash.

FIG. 9 shows a portion of a sheet of paper bearing a text normally typewritten but underlined by the use of the novel device of this invention.

FIG. 10 illustrates a modified embodiment of the invention wherein the novel underlining type is slidably mounted on the type-guiding fork and is actuated through a keyboard key.

FIG. 11 is a perspective view showing in dotted lines a typewriting machine having applied thereto a modified form of underlining type according to this invention.

FIG. 12 shows a still further embodiment of the invention, which is somewhat similar to that of FIG. 11.

FIG. 13 illustrates a modified underlining device in accordance with the invention, which in this instance is frame-shaped.

FIG. 14 illustrates the manner in which the device of FIG. 13 acts with respect to the upper or capital types.

FIG. 15 illustrates a simplified form of the underlining member shown in FIGS. 13 and 14, wherein said member is provided with upwardly extending heel portions.

FIG. 16 illustrates a modified form of underlining type mounting member wherein the underlining type receives the aligning heel of the usual types instead of receiving the top of the type body.

FIG. 17 illustrates the same embodiment shown in FIG. 16, acting for capital letters or types.

FIG. 18 illustrates a modified embodiment of the invention wherein the underlining type is provided with two parallel dashes, thus allowing a double underline similar to that obtainable with the previous embodiments together with the conventional underlining type.

FIG. 19 shows a text printed on paper but including a double underline.

FIG. 20 illustrates a still further modified form of underlining device, which in this instance includes a pair of underlining dashes aligned with the upper and lower characters of each typewriter type, respectively.

The same reference characters are used to indicate like or corresponding parts throughout the drawings.

Briefly, the underlining device *a* of this invention, applied to a conventional typewriting machine *m*, comprises a horizontal underlining dash 4' (or more than one) of

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metal or other suitable material similar to the rest of the types 9, said underlining type dash 4' being movable from an inoperative position to an operative position in which it will be in the path of the type-bars 7 of the remaining types 9, whereby it is capable of receiving the impact of said types 9 and reproducing the underlining dash through the inked ribbon 11, the underling device *a* being provided with hand control means 5 to be described hereinafter.

More specifically and as shown in the drawings, the invention may be carried out in accordance with any of the examples illustrated in FIGS. 1 to 20, or with any modifications thereof which may fall within the scope of the appended claim.

Thus, for example, in accordance with the embodiment illustrated in FIGS. 1 to 8, the typewriting machine *m*, apart from the type-bars *b* actuated by means of keys 6' of the general keyboard *c*, includes a lever arm 1 the power of which is provided by a set of keys 5—5' located in the general keyboard *c*, and the fulcrum of which is provided by an intermediary pin 20 about which the lever arm is pivoted by the power 5—5', whereas the resistance or weight of the lever 1 is provided by an arch-shaped terminal member *a* comprising side arms 3 extending from an intermediate bar 2 and serving as mounting means for a horizontal dash underlining type 4' fixed to the terminal member arms 3 by means of small arms 4 with which it forms a generally U-shaped member projecting normally to the mounting member *a*, so that the recess formed by said underlining type 4' and the connecting arms 4 thereof, together with the mounting member *a*, is capable of receiving the head of any of the bodies 8 corresponding to the usual typewriter types 9.

In this manner, the aforesaid lever is free to move angularly about its fulcrum 20 from an inoperative position to an operative position in which, in response to a depression of key 5, it will remain opposite and above the type-guiding forked member 12, in which position it will be held by any suitable catch means (such as that indicated at 21 in FIG. 10) which may be similar to that used for the capital letter key in conventional typewriting machines and the release of which is obtained through the supplementary key 5'.

In this operative position, the underlining member 4' is so aligned with respect to the ordinary types 9 operated from the keyboard *c*, that it will be in the path of the bodies 8 thereof, below the type characters 9 and on the corresponding lower portion of the type body face or top 9', depending on whether the machine is set for writing in capital letters through the depression of the keys 6, or in small letters by means of the keys 6' after the release of the former.

This means that by merely depressing the underliner control key 5, the arm 1 will be moved from the inoperative position (shown in broken lines in FIG. 3) to its operative position (FIGS. 1, 2, 3 and 4) so as to remain interposed between the different types 9 individually set and the inked ribbon 11, so that when said dash-type 4' receives the impact of the body faces 9' of the various types 9 (FIGS. 2 and 4) it will reproduce through the ribbon 11 on the paper 13 clamped to the roller 16, the text 14 simultaneously underlined by the dashes 15 shown in FIG. 9.

When it is desired to stop the underlining, it will be sufficient (for the example shown in FIGS. 1 to 10) to depress the supplementary key 5' which will release the catch 21, whereby the arm 1 will return to its inoperative position either by its own weight or urged by a spring or other suitable means.

In case the typewriting machine *m* should include types 9 bearing signs such as stops, commas, dieresis, etc. not to be underlined, the body of each of such types may be formed with a recess 10 at the middle of the top or face thereof, aligned with the underlining type portion 4',

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whereas the lower portion of the body 9' should be made so as to clear the underlining dash 4', whereby the actuation of any of the type-bars *b*' (FIG. 8) will not operate the underlining device.

In accordance with a further embodiment of the invention, the underliner device *a* instead of being moved towards the type-guiding forked member 12 as in the case of FIGS. 1 to 9, may be arranged against said forked member as illustrated in FIG. 10.

It will be seen in FIG. 10 that the forked member 12 is provided with a pair of holes 18 serving as guides for the underliner upright arms 3 extending from one end of which are the small arms 4 carrying the underlining dash type 4' projecting above the forked member 12, whereas the opposite ends of the uprights 3 are connected to a lever arm 1 fulcrumed at 20, the power of which is provided by the connection through an extreme slot 18' of a bell-crank lever 18'' extending to a key 5 in the general keyboard *c*, supplemented by a second key 5', the latter including a catch 2' for holding the underliner device *a* in operative position above the type-guiding forked member 12 (FIG. 10) in response to the depression of key 5, whereas the depression of key 5' will cause the underlining device *a* to move downwards to an inoperative position shown in broken lines in FIG. 10, through the action of a spring 19 normally urging the arm 1 towards this latter position.

In more simplified constructions, the underlining device *a* may be formed by a shaft 1 pivoted between bearings 22 to the typewriting machine body or frame, said shaft forming opposite said type-guiding forked member 12 a mounting arch member 3 including the small arms 4 connecting the underlining type 4' thereto, so that by actuating the terminal handle 5 of said shaft 1 the mounting arch 3 may be moved so that the underlining type will remain in an inoperative position (shown in broken lines in FIG. 11) or in an operative position similar to that described in connection with the previous embodiments.

Likewise, FIG. 12 illustrates an embodiment in which the shaft 1 mounted in bearings 22 acts with a catch 23 between two stops, following straight paths controlled by a knob 5 at one end of said shaft 1, whereas the opposite end, opposite an elbowed portion 3 above the type-guiding forked member 12, is formed by a terminal portion 4' constituting the horizontal dash underlining type.

The mounting means for the underlining dash type may be variously shaped. For example, in some cases the type body tops or faces afford little surface for pushing or striking the underlining dash 4', particularly where the small letter types are located. The invention contemplates forming the mounting member 2—3 with a frame comprising thin side bars 3 and an upper bar 2, the frame being completed by a lower bar of the same width as the types 9 and constituting the underlining type 4', whereby the opening or space within the mounting frame allows the free passage of the ordinary types 9 both in small letters (FIGURE 13) and in capital letters (FIG. 14) thus insuring the impact thereof on the underlining type. Also, if the free lower surface of the type body 9' allows it, the underliner mounting member may be simply formed by two end heel members 3 capable of receiving the impact of the lower corner zones of the face 9' of each type 9, as shown in FIG. 15.

If the arrangement or the size of the type bodies 9 allows very little face surface 9', the impact may be obtained in another zone of the bar 7, or on the aligning tail 24, in which case the underlining member mounting portion could have the shape as shown in FIGS. 16 and 17. In this embodiment, it would act as described in connection with the capital letters, whereas for small letters (FIG. 16) the impact is received by the lower bar 2 of the mounting member 3, actuated by the aligning tail portion 24.

A double underline may also be obtained by means of

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the device of this invention, as shown in FIG. 18. To this end, the mounting member 2—3 is provided with two parallel underlining dash types 4'. The same result can be obtained with the device of this invention and the conventional underlining type, in which case the former should not coincide with that of the ordinary typewriter underlining type, but be parallel therewith in order to obtain the double underline as shown in FIG. 19.

Finally, the underliner mounting member 2—3 may provide a pair of underlining types 4' arranged for the underlining of the upper capital letters and the lower small letters, respectively, for typewriting machines in which the different types maintain a constant height and the selection of capital or small types is obtained by the raising or lowering of the type-guiding forked member 12 and the system connected thereto.

It is obvious that many changes and/or modifications will occur to those skilled in the art, without departing from the scope of the invention as clearly set forth in the appended claim.

I claim:

In combination, a typewriter frame, a typewriter carriage, a typewriter platen rotatable in the typewriter carriage and extending transversely thereof, a forked type-

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guiding member on the typewriter frame in front of the platen, horizontally-extending bearing means on the top of the typewriter frame and at the elevation of the forked member, a shaft extending horizontally across the top of the frame and journaled in the horizontal bearing means, said shaft having a bent arm portion carrying an underlining type and a terminal handle on one end of the shaft for rotating the shaft, said underlining type arm portion being adjustable between an operative position overlying the forked member and an inoperative position underlying the forked member, and a standard type bar having type thereon pivoted on the typewriter frame and engageable with the underlining type arm portion when in its operative position to cause the underlining type to be struck simultaneously with the type on the standard type bar.

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