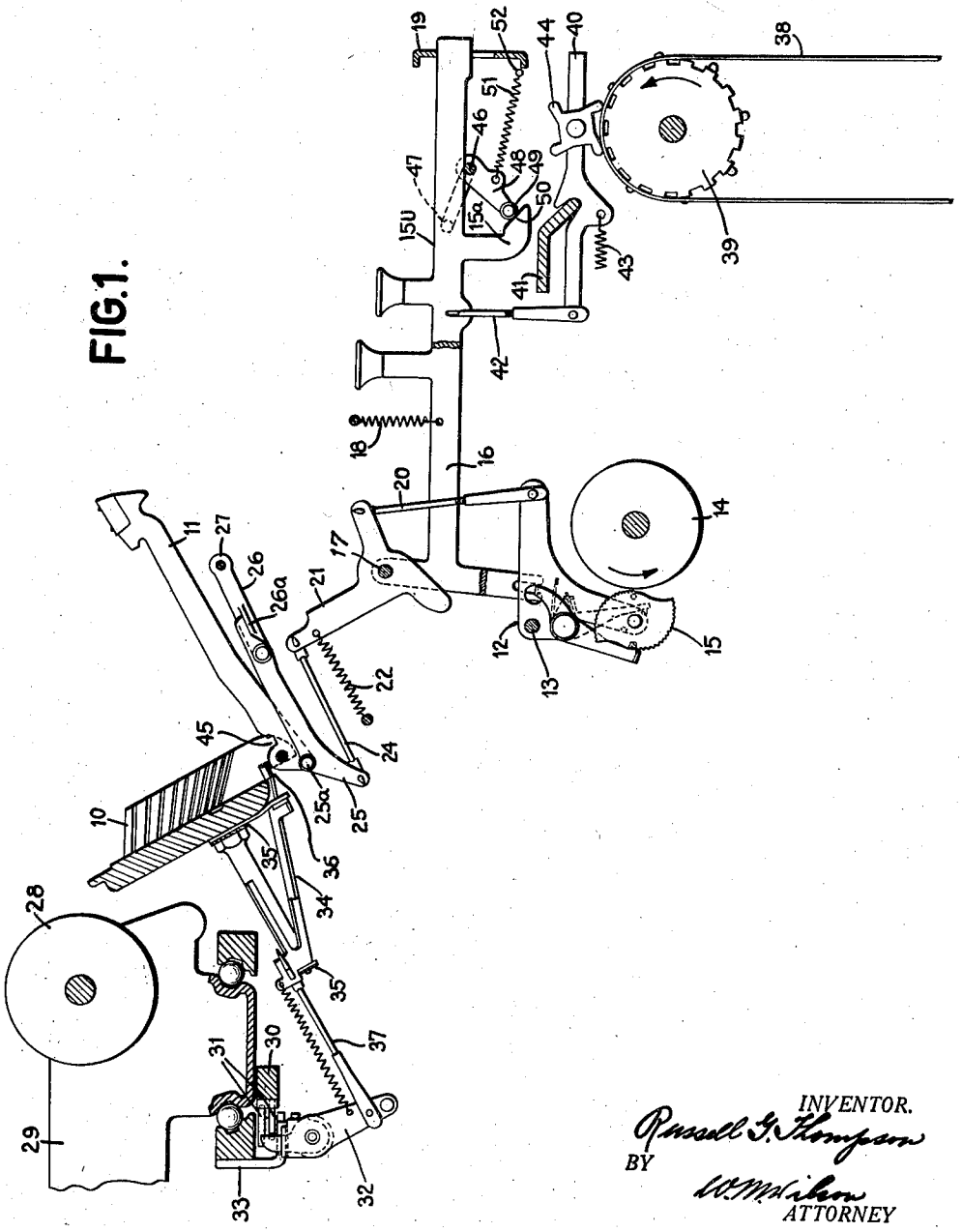
Sept. 21, 1937. R. G. THOMPSON 2,093,581

TYPEWRITING MACHINE

Filed Feb. 9, 1935 2 Sheets-Sheet 1

FIG.1.



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FIG. 2.

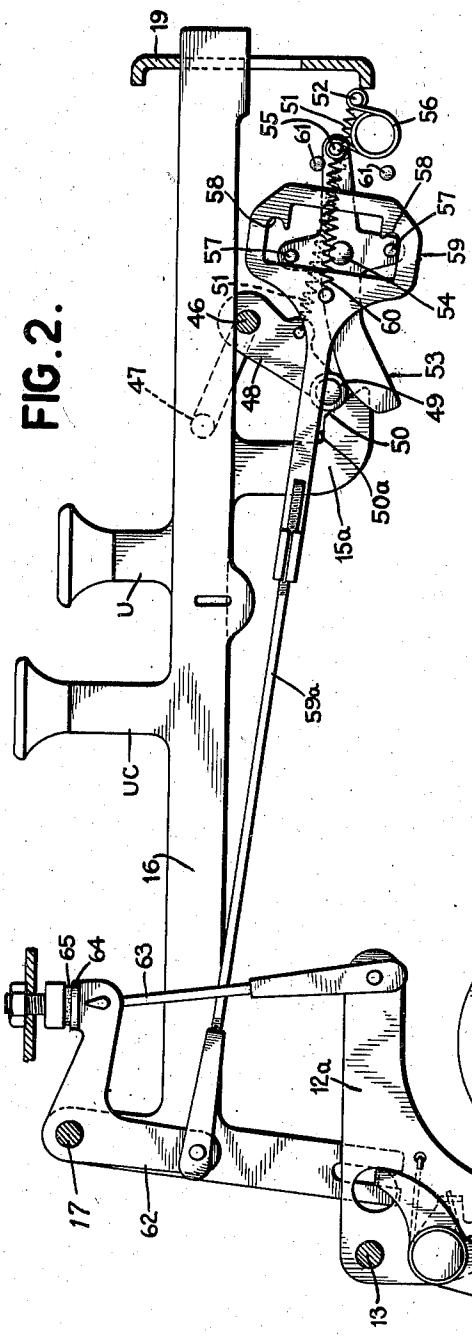
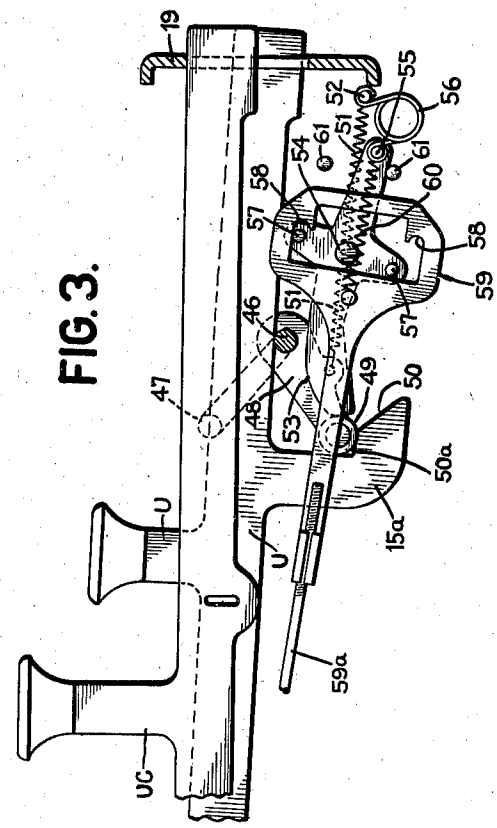


FIG. 3.



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2,093,581

TYPEWRITING MACHINE

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Application February 9, 1935, Serial No. 5,731

20 Claims. (Cl. 197—20)

This invention relates to typewriting machines in general.

The broad object of the invention is to provide an automatic underscoring device for typewriting machines and machines using conventional type bar actions.

An object is to provide an automatic underscoring device suitable for use in power operated typewriting machines and the like.

Another object is to provide an automatic underscoring device suitable for use in automatic letter writing machines.

A further object is to provide an automatic underscoring device which is fully operated by power.

Another object is to provide an automatic underscoring device which is selectively controlled by a key whereby repeated actuation of a back space key and/or underscoring key is eliminated, characters printed being automatically underscored as each character is printed.

A further object is to provide an automatic underscoring device for automatic letter writing machines which dispenses with the necessity for using three holes in the record tape or master sheet for each character printed by the machine and requires only a single hole for each character.

Still another object is to provide an automatic underscoring device for automatic letter writing machines which is flexible in operation whereby underscoring can be accomplished automatically either under selective control by manual operation of the keys or by holes in the usual record tape or master sheet.

Other objects, advantages, and features will be particularly pointed out in the following description and claims or will be apparent from a study of the description, claims and drawings.

In the drawings:

Fig. 1 is a vertical section through an illustrative form of automatic letter writing machine.

Fig. 2 is a detail enlarged section of the underscoring control device showing the parts in condition for automatic underscoring.

Fig. 3 is a view similar to Fig. 2 but shows the parts in the position they occupy when underscoring is not desired.

The invention has been shown in the drawings as applied to the well known "Electromatic" typewriter with automatic letter writing attachment purely for convenience in description. The invention is applicable to other power operated typewriters now on the market, such as the "Woodstock", for example, with suitable modifications in the design and/or arrangement of the parts, without departing from the broad principle of the invention. Since the "Electromatic" typewriter is now well known and its principal details of construction described in numerous patents, only such details as are necessary to an understanding of the present invention will be given herein.

The numeral 10 designates the usual wire segment in which are pivoted the type bars. Only one type bar is shown in Fig. 1, the usual underscoring type bar, and all are alike except that the underscoring type bar differs from the others in one respect to be explained later.

Associated with each type bar, and adapted to operate it, is a cam unit 12 pivoted on a cross rod 13. All the cam units associated with type bars are alike in construction and are operated by a power roller 14 constantly rotated by an electric motor (not shown) while the machine is in use. Each cam unit 12 has a double lobed cam 15 adapted to engage and be rotated by roller 14 when the cam is permitted to rotate a slight amount on its pivot under the control of a character key 16 pivoted on a rod 17, springs like 18 normally holding the keys in the upper ends of guide slots in a guide comb 19 located in front of the keyboard.

Cam units 12 are individually connected by adjustable links 20 to sub-levers 21 which are restored by springs 22 and pivoted on cross rod 17. Sub-levers 21 are also connected by links 24 to a toggle link 25 pivoted to the type bars at 25a. Toggle links 25 are pivoted to other toggle links 26 which in turn are pivoted on a wire 27 supported by the type basket (not shown). Links 26 have an offset portion 26a which abuts the end of link 25 to the right of the pivot to link 26. This prevents bending of the toggles comprising said links by a clockwise movement of links 25. The offset portions 26a are located in such a position that the toggles are very slightly bent downwardly to prevent rebound of the type bars as explained in Patent No. 1,761,758.

When a key is depressed, the cams 15 are allowed to rotate an amount sufficient to permit roller 14 to grip one of the serrated cam faces and rotate the cam a half revolution. This causes the cam unit to rotate on its pivot rod 13, drawing down link 20 and operating the associated type bar.

Except for slight differences in construction not affecting the principle of operation, the cam units are substantially the same in construction and operation as the one described in Patent No.

1,777,056. The type bars are rotated approximately 90° to strike the platen 28 rotatably mounted in carriage 29.

An escapement rack 30 is secured to the underside of the carriage 29. Cooperating with the escapement rack is a pair of escapement pawls or dogs 31 which are operated by a trip lever 32 pivoted on a fixed bracket 33. A universal bar is mounted on the rear face of segment 10 and comprises a frame 34 carried by four leaf springs 35, only two of which are shown in section in Fig. 1. This frame has a curved portion or universal bar 36 lying in a curved slot in the segment 10 adjacent the pivot for the type bars and is arranged to be struck by a part of the type bar in its movement toward the platen. A link 37 connects trip lever 32 to the universal bar frame 34. Thus the escapement mechanism is actuated once each time a character is printed by one of the type bars substantially as described in Patent No. 1,945,847.

The record tape or master sheet 38 is fed by a grooved roller 39 driven in a counterclockwise direction by the motor which drives power roller 14 but at a much slower speed. The drive is effected through clutch and gear connections not shown in the drawings. There is a hole in master sheet 38 for each character to be printed and the location of the hole with respect to one edge of the master sheet determines the character to be printed.

The analyzing mechanism for operating the keys 16 in accordance with the disposition of the holes in the master sheet comprises a series of trip levers 40, one for each key, mounted directly beneath the associated key. Trip levers 40 are pivoted near their mid-points on a fulcrum bar 41 by means of deep notches formed in the trip levers, springs 43 holding the bar and trip levers in pivoted relation as shown. Links 42 connect the rear ends of the trip levers to the keys 16 whereby the rocking of any trip lever a slight amount in a counterclockwise direction will cause the associated key lever to be depressed, thus releasing the appropriate cam unit 12 for operation.

Each trip lever 40 has a star wheel 44 rotatably mounted intermediate bar 41 and the right hand end of the trip lever. This star wheel has four teeth and is pressed lightly against the record tape 38 by springs 43 so that two of the teeth normally ride on the surface of the master sheet.

The tape 38 has sprocket holes cooperating with sprocket teeth in the roller 39 so positioned that the holes in the tape are always opposite the grooves or slots in the roller 39. If there should be a hole in the tape, the lower right hand tooth of the appropriate star wheel will slip into such hole and engage a groove in roller 39 and, as the roller rotates, the star wheel will be rotated. The relation between the star wheel and roller is such that under the foregoing conditions a toggle action will occur between the engaged tooth and roller 39 causing the front end of trip lever 40 to be raised above its normal position thereby depressing the associated key by the action of link 42. Therefore the keys will be selectively actuated according to the locations of the holes in the master sheet with respect to the edges of the tape.

This action of the master sheet in selective control of the keys is explained more fully in Patent No. 1,688,364 which shows a construction operating in accordance with the same general mechanical principle although slightly different in structural details.

Heretofore it has been necessary, when underlining, or underscoring as it is most commonly termed, of parts of a letter or other paper is desired, to provide at least three holes for each letter or other character underscored. One hole is required to print the letter, a second hole to back space the carriage, and the third is used to print the underscore for the letter. This is very wasteful in a number of ways. In the first place, three times as much of the operating time of the machine is required to underscore a printed line as to merely print the line. When only one or two words are to be underlined the waste of time is negligible; however, automatic letter writers are mostly used in circular letter direct-mail advertising in which underscoring is frequently used for special emphasis. This means that a considerable portion of the operating time of the machine is required to underscore the selected passages of the letter. This is also true of market letters, broker's reports, announcements, trade notices, and other papers in which sub-titles and titles are frequently underlined for appearance and for distinguishing them.

Aside from the waste of time by the automatic letter writer, there is a further and even greater waste of time by the operator of the key punch which prepares the master sheets and a waste of the expensive paper which must be used for the master sheets. The key punch is usually provided with a locked keyboard to prevent simultaneous depression of two keys and ruining the master sheet.

As a rule the punch keyboard is "stiffer" to the touch than the keys 16 and must be operated very carefully to avoid mistakes. The preparation of the master sheet thus requires considerably more time than the writing of the letter on the machine by manual operation of keys 16. Obviously the former practice of providing three holes for each letter is wasteful cumulatively.

It is possible to very materially reduce the time required to underscore by a relatively simple change which entails the use of only two holes per printed character, one each for the character and the underscore. This is accomplished by cutting a notch 45 in the underscoring type bar 11 to prevent it from operating the universal bar 36. With this construction, the underscoring key designated U, Fig. 1, is operated immediately prior to the letter or character key 16. The underscore is printed but the carriage does not escape, consequently the character to be underlined is printed directly above the underscore and the carriage escapes as usual.

The arrangement and method of operation just described reduces the time required for underscoring by one-third. A still greater saving can be secured by the addition of a very simple mechanism to the above arrangement which requires only two additional underscore control holes for each series of holes for the characters to be underscored, one hole to initiate underscoring operations and another to terminate them.

The additional mechanism has for its principal part an underscoring universal bar 46 comprising a rod bent to form a bail pivoted at each end as at 47 to the framework of the machine and underlying all the character keys 16 of the keyboard and the underscoring key U.

This bail has secured to it as by welding or brazing, an arm 48 which carries a roller 49 adapted to engage a cam surface 50 formed in a

hook-shaped extension 15a of the underscoring key U. A spring 51, connected to arm 48 and a fixed pin 52, normally tends to rock bail 46 counterclockwise.

The cam surface 50 and arm 48 are so related that, with the parts in Fig. 1, the depression of any character key 16 will cause bail 46 and arm 48 to be rocked clockwise against the tension of spring 51, and arm 48 coacting with cam surface 50 will depress the underscoring key in advance of the selected character key 16. The shape of the cam surface 50 is such that the underscore key U reaches the point at which its cam unit 12 is tripped very materially in advance of the corresponding point in the operation of key 16.

As a result the underscoring type bar is operated to print the underscore and restored before the type bar associated with the selected key 16 operates. Due to the notch 45 in the underscoring type bar 11, the escapement mechanism is not operated until after the character corresponding to the selected key is printed with the result that such character is printed over the previously printed underscore.

Normally bail 46 is held in the position of Fig. 3 by a cruciform cam member 53 pivoted at 54 on a fixed pin. Cam member 53 has a somewhat flattened end normally abutting the roller 49 and holding the latter in a depression 50a formed in the hook-shaped extension 15a in which position the key U is held partly depressed.

It does no harm to hold key U depressed as the cam units are so constructed that the holding of the key down after an operation of the cam unit prevents a second operation of the cam unit until the key is first restored and then again depressed. This is a well known feature of the "Electromatic" typewriter.

Cam member 53 has three pins spaced equal distances apart and from the pin 54. The extreme right hand or central pin 55 is connected to pin 52 by a toggle spring 56 which tends to overbalance cam member 53 on its pivot pin 54. The other two pins 57 are on diametrically opposite sides of pin 54 and coact with notched abutments 58 in a toggle shifting plate 59. A spring 60 connects plate 59 with pin 55. Two pins 61 on opposite sides of the arm carrying pin 55, limit movement of said arm to the extent shown.

Plate 59 is connected by an adjustable link 59a to one arm of a bell crank 62 pivotally mounted on the cross rod 17 adjacent an underscoring control key UC (Figs. 2 and 3). The other arm of bell crank 62 extends forwardly and pivoted to it is a second adjustable link 63 connected to a cam unit 12a of the double lobe variety used to operate the type bars 11. Key UC, when depressed, releases cam unit 12a for operation by power roller 14 which causes link 59a to be drawn to the left similarly moving plate 59. There is provided a trip lever 40 and a star wheel 44 for operating key UC under control of an underscoring control hole in the perforated master sheet 38. Thus key UC can be operated either by hand or automatically under control of master sheet 38.

To avoid shock and excessive noise when the spring 60 restores plate 59, the horizontal arm of bell crank 62 has an offset lug 64 cooperating with an adjustable resilient stop 65 carried by a fixed part of the framework. Normally spring 60 holds lug 64 in contact with stop 65.

The operation of the mechanism just described is as follows, assuming the parts are in the normal position of Fig. 3. When key UC is depressed, cam unit 12a is operated in the normal way by power roller 14 causing the cam to turn a half revolution. This results in drawing link 59a and plate 59 to the right. The upper pin 57 will be engaged by the wall of the coacting abutment 58 and cam member 53 will be rocked counterclockwise far enough to carry toggle spring 56 through and beyond dead center. Spring 56 then overbalances and moves the cruciform member counterclockwise to the position of Fig. 2, thereby permitting spring 51 to rock bail 46 counterclockwise into contact with the keys 16. The pin 55 moves upwardly to the position of Fig. 2 thus changing the direction of the force applied by spring 60 to plate 59 so that in restoring plate 59 the latter also moves upwardly and to the right to position the plate with the lower pin 57 abutting the edge of the plate and in line with the wall of the lower abutment 58 as in Fig. 2. The bail 46 is now free to operate the underscoring key U each time a character key is depressed.

When it is desired to terminate underscoring the underscoring control key UC will be again depressed causing a second operation of cam unit 12a and again drawing plate 59 to the right.

Plate 59 operates exactly the same as before except in this case the lower pin 57 is engaged by the lower abutment 58 and cam member 53 rocked clockwise, while spring 60 pulls plate 59 downwardly to the right instead of upwardly to the right. As a result the bail 46 will be positively moved back to the inoperative position of Fig. 3 by the action of member 53 on roller 49. This movement of bail 46 has the effect, however, of depressing the underscoring key U to the releasing point of the cam unit 12 causing an operation of the underscoring type bar. If the key UC is depressed after the last letter key has been depressed in underscoring operations, the above feature has the effect of causing the space next to such letter to be underscored.

In some respects this feature might be considered advantageous while in other cases undesirable. For example, in the multigraphing, printing or typewriting of form sales letters, follow-up letters, and reminders it is sometimes desired to create the impression that the letters are personally dictated and individually typewritten. Therefore, in setting up the form letter as by setting type, typewriting copy for a photo-reproduction process, or the like, the person setting up the form letter deliberately makes one or more mistakes of a trivial form commonly made by stenographers and typists. The recipients, accustomed to the careful accuracy usually found in printed matter, argue to themselves that the letter must be personally typed, reasoning that the care taken by printers to prevent such errors would result in a perfect copy. In cases like the above, the extension of the underscoring beyond the last letter of the last word of an underscored phrase helps to create the impression that the letter is personally dictated and typewritten.

In automatically typewritten market letters, circulars, notices, pamphlets, and the like, the extension of the underscoring beyond the desired point would be undesirable, particularly as the underscoring type bar is often used to print decorative lines below or between letters and subtitles, and for other purposes than underscoring and the extra underscore might destroy the artistic appearance of the typewritten matter. In such cases the key UC should be operated before or simultaneously with the key controlling the printing of the last letter to be underscored and

the underscoring control hole should precede the hole controlling the printing of the last letter or, alternatively, should be punched in line with it transversely of the perforated tape.

It will be noted that nothing has been said so far concerning the part the space bar plays in connection with bail **46** and the underscoring key U. It is optional whether bail **46** is controlled by the space bar or not. If bail **46** extends underneath the usual key lever controlled by the space bar (not shown) the spaces between underscored words will be underscored, otherwise only the printed letters will be underscored. As the underscoring type bar does not control the escapement mechanism, it will be preferable in most cases to have the key lever of the space bar control the bail **46** as in the case of character keys to enable the typewriting of signature lines, blank lines, and the ornamental lines mentioned above. Under the last named conditions the underscoring of blank spaces between words or parts of underscored matter may be avoided in particular cases by placing underscore control holes at the beginning and end of each underscored word.

This, of course, will slightly reduce the saving in time and perforated master sheet, but will still be a considerable saving over the method of back spacing by hand or by providing back spacing holes. For example, since the average word of a letter comprises say five letters, the former practice would require fifteen holes in the master sheet to print the average word and underscore it. With an underscoring control hole at the beginning and end, the average word would require only seven holes, a saving of more than 55% in time and perforated master sheet material. With a single underscoring control hole at the beginning of the first word and at the end of the last word of a phrase, a saving of at least 60% in time and perforated master sheet material can be realized. These savings are not confined to the operation of the automatic letter writers but are more than duplicated in the machine for perforating the master sheets.

The automatic underscoring mechanism is advantageous in power driven typewriters generally, whether controlled by a perforated master sheet or merely operated by manual control of the keys. This will be appreciated when the number of operations required to underscore phrases on an ordinary typewriter, whether power driven or not, is taken into consideration. With the underscoring mechanism herein described installed in an ordinary power driven typewriting machine, it is unnecessary for the operator to remove her hands from the keyboard other than to insert paper, as the necessity for partly returning the carriage by hand to begin underscoring of a word or phrase is avoided.

The mechanism described herein is not limited to use in power operated typewriters or automatic letter writers but may be used generally in any machine employing typewriting mechanism. For example, the mechanism is admirably adapted for use in the receivers of printing telegraph systems and when so used a considerable reduction in line signals and hence a saving in line time is possible over previous methods of underlining. It enables parts of a message to be underscored in lieu of italics where special emphasis is desired as only two additional line signals would be required to select the underscore control key lever for each underscored word or phrase.

While there has been shown and described and pointed out the fundamental novel features of the invention as applied to a single modification, it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention. It is the intention therefore to be limited only as indicated by the scope of the following claims.

What is claimed is as follows:

1. In combination, a series of character type bars and an underscoring type bar, power means for operating said type bars, release levers for selectively controlling the operation of the type bars by the power means, means for selectively operating the release levers, a coupling member common to all the character release levers and adapted when any selected lever other than the one associated with the underscoring type bar is operated to operate the underscoring release lever in advance of the selected lever.

2. In combination, a record tape having character designating perforations, a record analyzing device for sensing said perforations, a series of character type bars and an underscoring type bar, a plurality of control levers controlled by the analyzing device for controlling the operation of the character type bars and an underscore control lever and underscoring type bar control lever; a universal bar common to and operable by all the character type bar control levers and adapted when operated by any selected character type bar control lever to operate the underscoring type bar control lever in advance of the selected character type bar control lever, said universal bar being movable from an active to an inactive position and vice versa; and means controlled by the underscore control lever for operating the universal bar to move it to and from its active position.

3. In combination, a movable record strip having character designating perforations, and underscoring control perforations, character type bars controlled by the character designating perforations, an underscoring type bar, means for causing the underscoring type bar to operate each time a character type bar is operated, and means controlled by the underscore control perforations for rendering the first named means effective and ineffective.

4. An automatic letter writer comprising a record strip provided with designations for letters and other characters and underscoring control designations, a series of type bars for letters and other characters including an underscoring type bar, power means for operating said type bars, a series of control members each associated with a type bar for selectively connecting the type bars to the power means, means controlled by said designations for selectively operating the control members, means for operating the underscoring control member each time another control member is operated, and means controlled by the underscore control designations for rendering the last named means active and inactive.

5. In combination, power operated typewriting mechanism including a series of control elements for selectively controlling the typewriting of letters and other characters and underscoring, means whereby the operation of a selected character control element operates the underscoring control element, a record strip having character designations and underscoring control designa-

tions, and power operated means controlled by the underscoring control designations for rendering the first named means effective.

6. In combination, character printing type bars, an underscoring type bar, manually depressible character key levers for controlling the operation of the character type bars, an underscoring key lever for controlling the underscoring type bar and having a cam projection, and a bail rockably mounted underneath the character key levers and having an arm engageable with said cam projection whereby the depression of any selected character key lever causes operation of the underscoring key lever.

7. In combination, character printing type bars, an underscoring type bar, manually depressible character key levers for controlling the operation of the type bars, an underscoring key lever having a cam projection, and a bail rockably mounted underneath the character key levers and having an arm engageable with said cam projection whereby the depression of any selected character key lever causes operation of the underscoring key lever, an underscoring control key, and means controlled by the last named key for moving said arm in an ineffective position.

8. In combination, character printing type bars, an underscoring type bar, manually depressible character key levers for controlling the operation of the type bars, including an underscoring key lever having a cam projection, and a bail rockably mounted underneath the character key levers and having an arm engageable with said cam projection whereby the depression of any selected character key lever causes operation of the underscoring key lever, an underscoring control key, a rockable member having a cam adapted to move said arm to a position ineffective to control the cam projection when the bail is operated, a toggle spring connected to the rockable member and adapted to rock the rockable member in either direction, a toggle shifting element adapted to overbalance the spring and rock said member; and key controlled means for operating said element.

9. In combination, a series of character type bars and an underscoring type bar, escapement mechanism actuable by the character type bars but not by the underscoring type bar, a power actuator for the type bars, a series of character key levers for selectively connecting the character type bars to the power actuator, a control lever for connecting the underscoring type bar to the power actuator, and means controlled by the character key levers for operating said control lever each time a character key lever is operated whereby to cause each printed character to be automatically underscored as a consequence of a single key operation.

10. In a power operated typewriting mechanism, an underscoring type bar, a character type bar, a power universal actuator; control elements, one for each type bar, for operatively connecting them to the universal actuator; means whereby an operation of the control element for the character type bar operates the other control element, means connectible to the universal actuator for rendering the first named means active and inactive, and a control element for connecting the second named means to the universal actuator.

11. In a typewriting mechanism, a series of keys, type bars controlled by the keys, a universal bar common to certain of said keys and having a connection to a predetermined key whereby operation of any other key operates the predetermined key, power means for moving the universal bar to an ineffective position, and a key for controlling the power means.

12. In a typewriting mechanism, a series of printing elements, keys for controlling the operation of the printing elements; a universal bar common to certain of said keys and adapted to be moved from an active position in which it is engageable by said keys to an inactive position out of range of the keys; a connection from said universal bar to a predetermined key whereby the operation of any other key when the universal bar is in active position operates the predetermined key, a rockable cam for moving the universal bar from an active to an inactive position and vice versa, and means for alternately rocking the cam.

13. In a typewriting mechanism, a series of printing elements, keys for controlling the operation of the printing elements; a universal bar common to certain of said keys and adapted to be moved from an active position in which it is engageable by said keys to an inactive position out of range of the keys; a connection from said universal bar to a predetermined key whereby the operation of any other key when the universal bar is in active position operates the predetermined key, a rockable cam for moving the universal bar from an active to an inactive position and vice versa, and power means for alternately rocking the cam, said power means rocking the cam first in one direction and then in the reverse direction by two successive operations; and a key for initiating a single operation of the power means at a time.

14. In a typewriting mechanism, a series of keys, a universal bar common to certain of said keys and movable from a position engageable by said keys to a position out of range of control by said keys, means connecting the universal bar to a predetermined one of said keys whereby an operation of a key operates the predetermined key when the universal bar is in key engaging position, a cruciform cam member rockable in one direction to move the universal bar to its key engaging position and in a different direction to move the universal bar out of range of the keys, a pair of pins carried by two of the arms of the cam member and diametrically opposite the axis of rotation of said member, a reciprocable shifting plate having abutments alternately engageable with said pins to rock the cam member to and from its two positions by two successive operations, power means for reciprocating said plate, and means for initiating a single operation of the power means at a time.

15. In combination, a series of character type bars, an underscoring type bar, power means for operating said type bars, release levers for selectively controlling the operation of all the type bars by the power means, means for selectively operating the release levers; a coupling member common to all the character release levers and adapted, when any selected lever other than the one associated with the underscoring type bar is operated, to operate the underscoring release lever in advance of the selected lever, and means to render the coupling member ineffective.

16. In combination, a movable record strip having character designating perforations and underscoring control perforations, character printing means controlled by the character designating perforations, an underscoring means, mechanism

for causing the underscoring means to operate each time a character is printed, and means controlled by the underscore control perforations for rendering said mechanism effective and ineffective.

17. In combination, power operated typewriting mechanism including a series of control elements for selectively controlling the typewriting of letters and other characters and underscoring, means whereby the operation of a selected character control element causes an operation of the underscoring control element, a record strip having character designations and underscoring control designations, and means controlled by the underscoring control designations for rendering the first named means effective.

18. In combination, character printing means, an underscoring means, manually operable character keys for controlling the operation of the character printing means, a key for the underscoring means having a cam portion, and a universal bar movably mounted underneath the character keys and having an arm engageable with said cam portion whereby the operation of any selected character key causes operation of the underscoring key.

19. In combination, character printing type bars, an underscoring type bar, manually operable character keys for controlling the operation of the type bars, an underscoring key having a cam portion and a bail associated with all the character keys and engageable with said cam portion whereby the operation of any selected character key causes operation of the underscoring key, an underscoring control key, and means controlled by the last named key for moving said bail to an ineffective position.

20. In a power operated typewriting mechanism, underscoring means, character printing means, a power universal actuator; a control element for operatively connecting the character printing means to the universal actuator; mechanism whereby an operation of said control element causes operation of the underscoring means, means connectible to the universal actuator for rendering said mechanism active and inactive, and a control element for connecting the last named means to the universal actuator.

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