

3,524,527

2 Sheets-Sheet 1

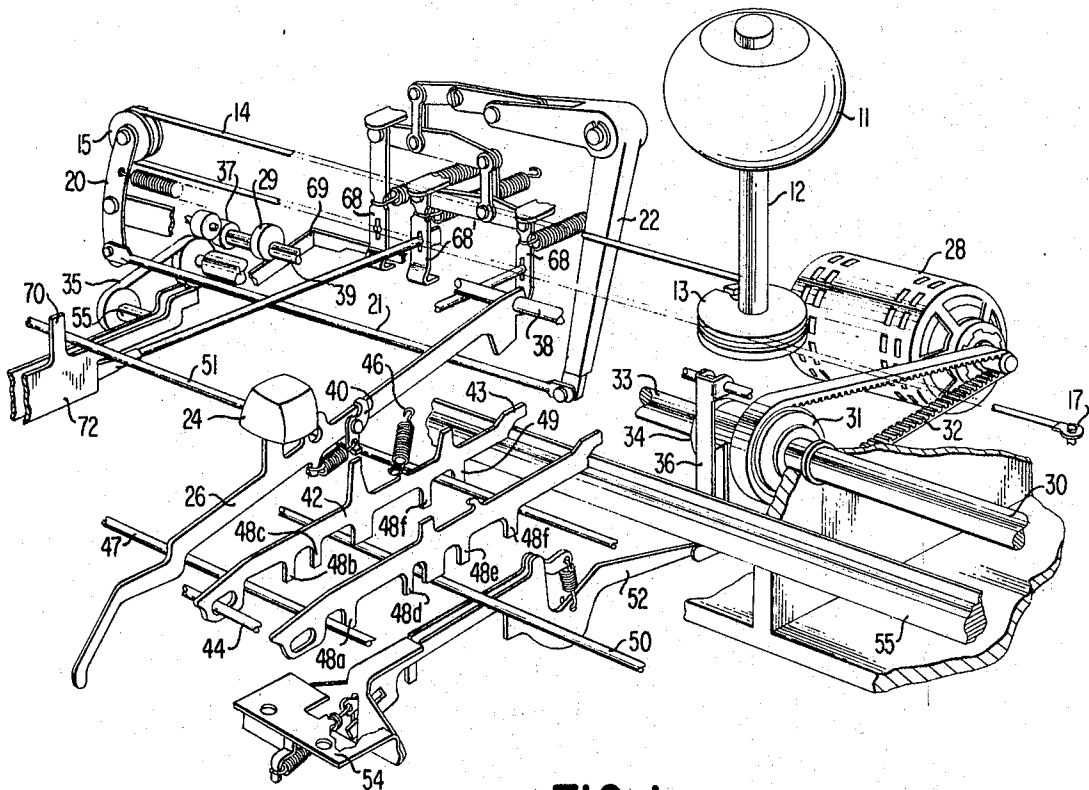


FIG. 1

		ROTATE														TILT LATCHES PULLED			
		-8	-7	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6	+7	+1	+2
TILT	0	B	R	J	Z	@	P	H	X	"	2	*	:		0	(	8		
	+1	C	S	[	K	A	Q	I	Y	#	3	+	;	!	1	)	9	0	
	+2	F	V	^	N	D	T	~	L	&	6	>	.	\$	4	<	,		0
	+3	G	W	_	O	E	U	]	M	'	7	?	/	%	5	=	-	0	0
ROTATE LATCHES PULLED		+1		0		0		0		0		0		0		0		0	
		+2			0	0			0	0			0	0			0	0	
		+4					0	0	0	0					0	0	0	0	
		-8									0	0	0	0	0	0	0	0	
INVENTOR R. V. DAVIDSON																			

FIG. 3

BY

J. Tamm
ATTORNEY

Aug. 18, 1970

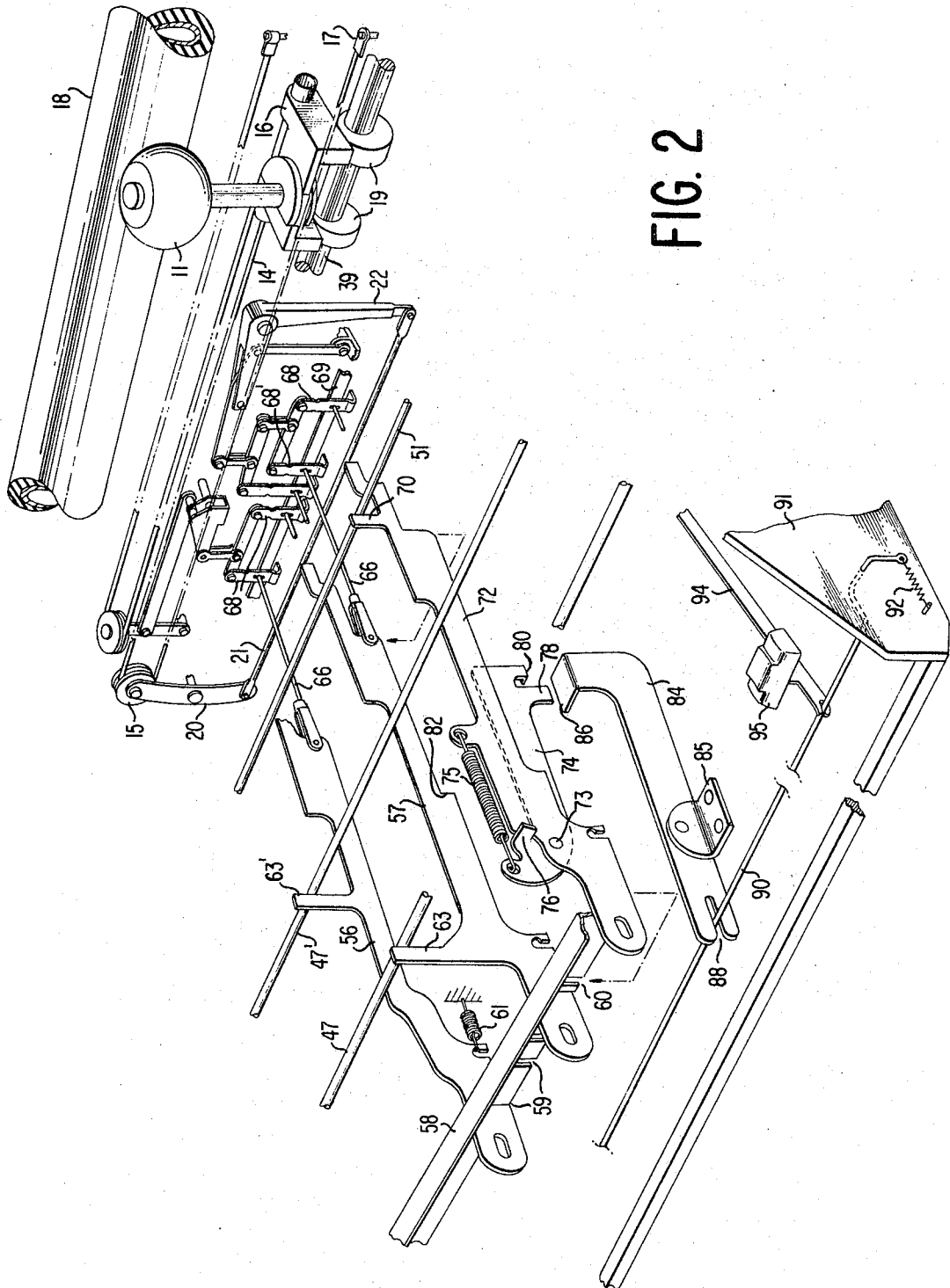
R. V. DAVIDGE

3,524,527

ALTERNATE CHARACTER SELECTION MECHANISM FOR TYPEWRITERS

Filed Nov. 22, 1967

2 Sheets-Sheet 2



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ALTERNATE CHARACTER SELECTION MECHANISM FOR TYPEWRITERS

Ronald V. Davidge, Lexington, Ky., assignor to International Business Machines Corporation, Armonk, N.Y.,
a corporation of New York

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Int. Cl. B41j 25/24

U.S. Cl. 197—71

8 Claims

ABSTRACT OF THE DISCLOSURE

An alternate character selection mechanism selects an upper case character from a lower case character corresponding to the same keylever in a mechanically positioned single element typewriter. Keylever responsive coding means provides a different mechanical positioning code for each keylever depressed. Keylevers corresponding to characters designated as upper case on a standard typewriter keyboard additionally actuate a common element which is linked to a coding member by an alternate character selection keylever through a pawl attached to the commonly actuated element, thus altering the positioning code transmitted to the print element positioning mechanism for characters designated as upper case. A plurality of designated lower case characters may also generate the same position code as does an upper case character by direct linkage from several keylevers corresponding only to lower case characters.

BACKGROUND

Field of the invention

This invention relates to upper and lower case character selection mechanisms for typewriters and more particularly to a character selecting mechanism for use in a mechanically positioned single printing element typewriter.

Selection of upper case characters is generally referred to as a "case shift" operation. To avoid confusion with the mechanical "shift" operation utilized by prior art typewriters, the operation of the instant invention will be referred to as an alternate character selection operation rather than a shift operation.

The typewriters to which the invention is applicable may be of the type described in U.S. Pat. 2,879,876 to L. E. Palmer, et al., entitled, "Single Element Printing Machine," issued on Mar. 31, 1959; U.S. Pat. 2,919,002 also to L. E. Palmer, entitled, "Selection Mechanism for a Single Printing Element Typewriter," issued on Dec. 29, 1959; or U.S. Pat. 2,978,086 to J. E. Hickerson, entitled, "Key Operated Machines," issued on Apr. 4, 1961, all assigned to the assignee of the instant application. The typewriters described in the above patents all utilize various key responsive mechanical coding mechanisms to position a single element printing head.

Description of the prior art

Many devices have been described in the prior art to facilitate character selection operations; that is, providing a means to select a single character to be printed from a key corresponding to two or more characters. Various methods have been used, including mechanically raising the level of either the type elements or the platen.

With the advent of more sophisticated machines, such as the single element machines referred to above, the problem of shifting became more difficult. One solution to this problem was to divide the print element into two

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sections, one containing the lower case characters and the other containing the upper case characters. Case selection was achieved by rotating the print element to present the desired section, upper or lower case, to the platen. Individual characters were selected by keylever linkage to the positioning mechanism. Upper and lower case characters corresponding to the same keylever were placed in the same relative position on the appropriate sections of the type element. Each keylever provided a single mechanical coded combination to the positioning mechanism, each combination representing the same position on the type head. Upper or lower case characters were then printed depending upon whether or not the upper or lower case section of the print element was presented to the typing surface.

While this method of shifting proved more efficient than the prior method, it required a complete machine cycle prior to a change in case, as well as a separate clutch to operate the shift mechanism. One machine cycle was used to position the proper case and a second to select a particular character. The extra machine cycle would consume valuable time particularly if the typewriter was a data terminal in a data transmission system.

Another character selection device found in the prior art provided for each keylever a plurality of mechanical coding members divided into groups. One of these groups at a time was presented to the keylevers in response to actuation of a shift key. This type of character selection device eliminated the necessity for an extra machine cycle during remote operation, but created another problem in that it required that each keylever corresponding to more than one character have a separate coding member for each character.

SUMMARY OF THE INVENTION

The instant invention provides apparatus for achieving character selection in a single element typewriter. It consists of a keylever responsive member which is capable of altering a mechanical positioning code representative of a lower case character to form a code representative of an upper case character. Keylevers operate both mechanical code selection members and a selecting member simultaneously. The selecting member is linked to a mechanical positioning means only if the selection key is operated when a keylever is actuated. Thus, a single machine cycle is utilized to position the printing element.

It is a first object of this invention to select one of a plurality of characters corresponding to a single keylever in an improved manner.

It is another object of the invention to select upper case characters on a single element typewriter requiring only a single machine cycle.

It is a further object of this invention to select upper case characters on a typewriter with a minimum number of mechanical parts.

It is yet another object of this invention to select an upper case character on a typewriter with a minimum number of mechanical operations.

The foregoing and other objects, features and advantages of the invention will be apparent from the following more particular description of a preferred embodiment of the invention, as illustrated in the accompanying drawings.

In the drawings:

FIG. 1 is a diagrammatical view of a typewriter showing the mechanism operated by the type keys.

FIG. 2 is a diagrammatical view of the selection assembly showing the head positioning mechanism and the alternate character selection elements.

FIG. 3 is a development view showing the location of the characters utilized on the surface of the type head.

Referring to FIG. 1, it will be noted that there is shown a partial view of a typewriter which is generally of the type disclosed in the Palmer Pat. 2,919,002 first mentioned above. This typewriter includes a mechanically positioned printing element consisting of a single element type head 11 having characters formed on its surface in a plurality of columns and rows. The head is carried by a spindle 12 on which a pulley 13 is mounted. A tape 14 is connected at one end to the pulley 13 and extends around that pulley and over pulley 15 to an anchor 17. A spring (not shown) acts on pulley 13 for rotating it in a direction to maintain tension on the tape. Pulley 13 is additionally mounted on a tiltable platform 16 (FIG. 2) which is driven against the platen 18 (FIG. 2) by cams 19 (FIG. 2) to effect printing during a print cycle. Pulley 15 is mounted on a arm 20 which has attached to its lower end link 21. Link 21 in turn connected to bellcrank 22 of the selection mechanism similar to that shown in U.S. Pat. 2,919,002 to Palmer, referred to above. The operation of the selection mechanism is more fully described therein.

The typewriter is provided with a plurality of key buttons 24, each corresponding to at least one character to be printed. For simplicity, only a single keybutton 24 and its associated keylever 26 is shown in the drawing.

A motor 28 continuously drives a shaft 30 by means of a pulley 31 and belt 32. Shaft 30 is selectively coupled to a cycle shaft 33 through a clutch mechanism 34. Clutch 34 is under control of cycle clutch latch 36. Cycle shaft 33 supplies power to provide a print selection cycle to be hereinafter more fully described.

Actuation of the type head occurs in the following manner:

Assuming that it is desired to print the character that is associated with keylever, or first input means, 26, the typist depresses keylever 26 by means of keybutton 24.

The keylever 26 is pivotally mounted on a fulcrum rod 38 and is biased toward a restored position by a spring not shown. A pawl 40 is mounted on the keylever 26 and is positioned to strike an interposer 42.

Interposer 42 is slidably mounted for movement, right to left as shown in FIG. 1 on a support rod 44, as well as up and down in a guide comb, not shown. When a keylever 26 is rocked counterclockwise, a pawl 40 engages an interposer 42 of which there is one for each keylever. All of the interposers are pivotally supported about a fixed support rod 44 in such a manner that each interposer can be rocked about the rod 44 and moved transversely within the limits of a slotted opening. All of the interposers are positioned laterally and limited in an upward direction by a pair of guide combs, not shown. A spring 46 biases each interposer toward the rear of the machine.

A plurality of first input, or keylever responsive means selector bails 47, only one of which is shown, are positioned beneath the interposers 42 and are operated by the keylevers through actuation of projections 48. Another and alternate character selection bail 51 is operated by second means responsive to a single actuation of a keylever, projection 49. When the interposer is moved toward the front of the machine the bails are operated. There are a total of seven different projections available to an interposer. Each interposer differs from the others by the particular projection or projections which it carries since each interposer is related to a character on the printing head and selects certain of the keylever responsive selector bails 47 according to the desired displacement of the type head. The projections 48 operate selector bails 47 which are connected to the mechanical positioning unit to be described hereinafter. The projection 49 operates an alternate character selection bail 51, which is part of the alternate character selection mechanism to be described in greater detail presently. In the chart below, each character is listed with an X indicating the projections which are present on the related interposers to cause selection of a particular character.

INTERPOSER PROJECTION CHART

Interposer Projection										
Key No.	Case		+1R	+2R	+4R	-8R	+1T	+2T	Alt	
	Lower	Upper	48a	48b	48c	48d	48e	48f	49	
5	0	1	!		x				x	x
	1	Q			x		x		x	
	2	A			x		x		x	
	3	2	"		x		x		x	x
	4	Z			x	x	x	x		
10	5	w			x	x	x			
	6	S			x	x	x		x	
	7	3	#		x	x			x	x
	8	X				x	x	x		
	9	E		x	x		x			
	10	D		x	x		x	x		
	11	4	\$		x			x		x
	12	C		x	x	x	x		x	
15	13	R			x	x	x	x	x	
	14	F			x	x	x			
	15	5	%	x						x
	16	V			x	x	x			
	17	T				x	x			
	18	G		x	x	x				
	19	6	&		x	x		x		x
20	20	B		x	x	x	x	x		
	21	Y				x		x		
	22	H		x		x	x	x		
	23	7	/		x	x				x
	24	N	^			x	x	x		x
	25	U			x					
	26	J		x		x	x	x		
	27	8	(					x	x	x
25	28	M	)				x			x
	29	I		x		x	x		x	
	30	K	{			x	x		x	x
	31	9	}						x	x
	32	'	<					x		x
	33	O				x	x			
	34	L	~				x	x		x
30	35	0			x			x	x	
	36	.	>			x		x		x
	37	P			x		x	x	x	
	38	;	+			x			x	x
	39	=								x
	40	/	?			x				x
	41	@		x	x		x	x	x	
	42	*				x		x	x	x
35	43	-		x		x	x			

Hereafter, it will be understood that the keylever 26 and the interposer 42 are merely representative of any of the plurality of keylevers and interposers utilized in a machine of this type.

Depression of an interposer 42 by the action of the pawl 40 attached to the keylever 26, causes a third keylever responsive means, a projection on the interposer 42, to depress a cycle clutch bail 50 which in turn actuates cycle clutch latch pawl 52, mounted in a bracket 54, connected to the cycle clutch latch 36. Thus, in response to actuation of a keylever 26, clutch 34 is operated initiating a print cycle.

As the cycle shaft 33 begins a half revolution under control of cycle clutch 34, belt 35 drives filter shaft 55 through one-half revolution thereby driving any selected interposer 42 to a restored position and at the same time operating any selected selector bails 47 and/or the alternate character selection bail 51. At a later point in the revolution of cycle shaft 33 the cam 29 on print shaft 39 drives bail 69 downward, carrying with it any of selector latches 68 not removed in response to the movement of selector bails 47. Cams 19 (FIG. 2) attached to print shaft 39 then drive tiltable platform 16 (FIG. 2) into platen 18 printing a character.

Referring now to FIG. 2, there is shown a partial view of the selection unit. Several of the elements already described in connection with FIG. 1 are duplicated to better show the relationship between FIGS. 1 and 2. The selection unit is physically located directly to the left of the elements shown in FIG. 1.

A plurality of first and second coding means, designated as latch interposers 56 and 57, are each operated by a selected bail 47 or 47'. There are a total of six latch interposers combined in such a manner to produce a binary code representative of sixteen units of rotation (-8 to +7) and four units of tilt (0 to +3). The latch interposers operate in a similar manner to those shown in the already referred to Palmer patent. The latch interposers are mounted for longitudinal movement similar to

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the interposer 42 about a support rod, not shown. A guide comb 58 having a plurality of slots 59 and 60 maintains the proper parallel spaced relationship between the latch interposers 56 and 57. The guide comb 58 is mounted on a portion of the machine base, not shown. A spring 61 is provided for each latch interposer 56 and 57 and maintains the latch interposers in an unoperated position toward the rear of the machine. During a print cycle any operated selector bail 47 engages a projection, or bail engaging surface, 63 and moves its associated latch interposer toward the front of the machine. Each latch interposer is operably connected to the printing element positioning means as follows. At the end of each latch interposer toward the rear of the machine is connected a selector latch link 66. Each selector latch link 66 is in turn connected to a selector latch 68. A bail 69, driven downward through the action of cam 29, gear 37 and shaft 33 in response to actuation of clutch 34 (see FIG. 1), carries downward any selector latch not removed through the action of a selector bail and latch interposer. This action results in the proper positioning of the type head 11 to select a particular character associated with the depressed keybutton 24.

In summary, the basic elements of a single element typewriter have been described. The mechanically coded character selection mechanism is responsive to a particular combination of selected interposer latches. The interposer latches are operated in response to depression of a keybutton in a combination representative of a particular interposer associated with each keybutton. These elements and their associated functions, as previously mentioned, are all more fully described in the Palmer reference, U.S. Pat. 2,919,002.

ALTERNATE CHARACTER SELECTION MECHANISM

As shown in the interposer projection chart, FIG. 1 and FIG. 2, there is provided a projection 49 on interposers 42 associated with those keybuttons, or first input means, 24 corresponding to both an upper and lower case characters. Projection 49 operates an alternate character selection bail 51. This bail engages a projection 70 on a second input, or keylever, responsive means, alternate character selection slide 72 which is mounted immediately adjacent to one of the latch interposers. The alternate character selection slide, also responsive to keylever actuation, 72 is located immediately adjacent to latch interposer 57, as indicated by arrows on the drawings, and is supported in a similar manner to the latch interposer 56. Pivotably mounted on pin 73 at the forward end of alternate character selection slide 72 is a means responsive to an alternate character selection keylever, operating pawl 74. Operating pawl 74 is biased in a clockwise direction by spring 75 operating in conjunction with a stop tab 76. At the other end of operating pawl 74 is located an alternate character selection lever engaging tab 78. Also present on operating pawl 74 is a latch interposer engaging shoulder 80. This shoulder 80 is so positioned such that when operating pawl 74 is in an unoperated position the shoulder will pass under the surface 82 of the latch interposer 57.

Located directly beneath the alternate character selection slide 72 is an alternate character selection lever 84 which is pivotably mounted in a bracket 85 attached to a portion of the machine frame, not shown. At one end of the alternate character selection lever is a tab engaging surface 86. At the other end of the alternate character selection lever 84 is provided a slot 88 through which bail 90 passes. The bail 10 is mounted in the machine frame 91 in such a manner that a spring 92 maintains a clockwise tension on the bail.

Also mounted in actuating relationship to the bail 90 is an alternate character selection keylever 94 upon which is mounted alternate character section key 95.

As can be clearly seen from the drawing, depression of the selection key 95 will cause the alternate character

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selection lever 84 to rotate in a counterclockwise direction thus causing pawl operating surface 86 to push the alternate character selection lever engaging tab 78, as well as operating pawl 74, upward and counterclockwise. When operating pawl 74 is in an operated position latch interposer engaging shoulder 80 will be directly opposite surface 82 of latch interposer 57. Subsequently, if a keybutton 24, associated with both an upper and lower case character, is struck its associated interposer 42 having a projection 49 thereon will operate the bail 51 in response to rotation of filter shaft 55. This will cause bail 51 to drive alternate character selection slide 72 toward the front of the machine carrying with it latch interposer 57 by virtue of the engagement with shoulder 80 of the operating pawl. Operation of latch interposer 57 will necessarily cause the removal of selector latch 68' from under the bail 69, thus causing a different character to be selected from the mechanically coded character selection mechanism than would be selected without the removal of selector latch 68' thereby causing an upper case character to be selected.

Referring to the interposer projection chart and the drawings, it will be seen that latch interposer 57 will not be operated via alternate character selection bail 51 unless the shift key is depressed. Failure to depress the alternate character selection key will cause only selector bails 47' to be operated, thereby selecting only a lower case character.

If the number of characters designated as lower case exceeds those designated as upper case it is desirable to provide an independent means for operating latch interposer 57. As can be seen from an examination of the interposer projection chart in conjunction with the drawings, it will be noted that a certain number of interposers are provided with projections 48a to operate selector bail 47. This bail is capable of directly actuating the same selection coding member, latch interposer 57, as does the alternate character mechanism.

FIG. 3, showing the location of the characters on the type head 11, is divided into eight groups of eight characters each. The four characters shown on the lefthand side of all of the groups require the actuation of a common selector latch (i.e., 68'). Those characters designated as upper case on the interposer projection chart actuate this common selector latch through the shift mechanism as described above, while the remainder of these characters operate the common selector latch directly through bail 47.

LOWER CASE SELECTION OPERATION

If it is desired to print a lower case character, for example a "3," the typist depresses the "3-#" keybutton 24 attached to the keylever 26. This causes the pawl 40 to depress interposer 42 placing its rear end 43 in a position to be driven forward by actuation of filter shaft 55. Cycle clutch bail 50 being depressed by interposer 42 causes the cycle shaft 33 to be actuated through the clutch 34, thereby initiating a print cycle.

Mechanical coding for this specific character to be printed, here a "3," is initiated by projections 48b, 48c and 48f. These projections operate their associated selector bails when the interposer 42 is driven toward the front of the machine by the rotation of the filter shaft 55. Projection 49 operates the alternate character selection bail 51 in a similar manner.

Referring now to FIG. 2, it will be seen that even though the alternate character selection bail 51 is actuated by projection 49, which causes alternate character selection slide 72 to move toward the front of the machine, the latch interposer engaging shoulder 80 will pass under the surface 82 on latch interposer 57. Thus, the mechanical input to the selection mechanism will not be responsive to actuation of alternate character selection bail 51, but only to the selector bails operated. The selector bails

actuated will cause the proper positioning for a "3" to be printed when the bail 69 is actuated.

Selection of designated lower case characters by depression of any keybutton corresponding to an interposer which directly operates selector bail 47 through projection 48a proceeds in a similar manner to that described for projections 48b, 48c and 48f. Thus, it will be seen that projections 48 and bails 47 provide a first keylever, or input, responsive means.

UPPER CASE SELECTION OPERATIONS

If it is desired to print an upper case character, a second input means for producing an alternate character signal is provided. For example, the "#" the typist depresses the alternate character selection key 95 constituting an alternate character signal means and then the "3-#" keybutton. This causes the same operation as described above with the exception that due to the fact that the operating pawl 74 has been operated by the alternate character selection lever 84, the latch interposer 57 will now be linked to alternate character selection slide 72, thus mechanically adding the output of latch interposer 57 with the outputs of latch interposer 56 to produce a different positioning code than was formed for the lower case character. This new code is representative of the position of the "#" location on the type head 11.

While the alternate character selection mechanism shown here requires simultaneous depression of the shift key and a character keybutton, it may be desirable to provide a lock means such as utilized on standard typewriters to maintain the shift lever or the operating pawl in an operated position. For example, a latch may be located under the alternate character selection keylever 94 such that it maintains bail 90 in an operated position until after either one or a series of characters are printed. Another method would be to attach a spring biased latch to slide 72 such that it retains either operating pawl 74 or alternate character selection lever 84 in an operated position.

It may also be desirable to either increase the number of characters capable of selection or to decrease the number of keybuttons by utilization of a plurality of shift keys and their associated alternate character selection slides, etc., each associated with a different latch interposer.

The above described alternate character selection mechanism is directly compatible with current "shiftless" data transmission codes. These codes, for example ASCII (American Standard Code for Information Interchange), provide a different binary code for each character and have no separate code for upper or lower case "shift." By providing the typewriter with a plurality of latch interposer actuating solenoids responsive to a decoded incoming data signal, both upper and lower case characters may be selected directly without the provision of a separate shift code or extra machine cycle. Similarly, electrical contacts may be provided which are responsive to actuation of latch interposers to provide an output signal for transmission of data to a remote location.

Thus, it can be seen, that the above invention completely eliminates the necessity for an extra shift code in data transmission of characters typed on a mechanically coded single element typewriter. The increase in operating speed under the worst conditions for a standard typewriter of this type (alternate upper and lower case characters) would be on the order of 2 to 1 due to the elimination of the extra machine cycle required by the prior art machines between case shift functions.

While the invention has been particularly shown and described with reference to a particular embodiment thereof, it will be understood by those skilled in the art that the foregoing and other changes in form and details may be made therein without departing from the spirit and scope of the invention.

What is claimed is:

1. In a single element printing device having at least a first input means representing a first and alternate character to be printed including a mechanically positioned printing element, a printing element positioning means, a first means responsive to said first input means capable of operating a first coding means to provide an output to said printing element positioning means representative of said first character to be printed, and a second input means representing an alternate character selection signal; an alternate character selection means comprising: second coding means for providing an output to said printing element positioning means;

second means responsive to said first input means for operating said second coding means, said second means being responsive to a single actuation of said first input means; and

means responsive to said second input means for linking said second means responsive to said first input to said second coding means producing a combined output of said first and second coding means to said printing element positioning means representative of said alternate character to be printed.

2. In a keylever controlled single element printing device having at least one keylever representative of both a first and alternate character to be printed, including a type head having on its surface said first and alternate characters, head positioning means operatively connected to said type head for selecting said characters to be printed, first coding means capable of providing a mechanical output to said head positioning means for said first character to be printed, first means responsive to the actuation of said keylever for operating said first coding means; an alternate character selection means comprising:

second coding means, said second coding means providing a mechanical output to said head positioning means;

second means responsive to the actuation of said keylever for operating said second coding means, said second means being responsive to a single actuation of said keylever;

an alternate character selection keylever; and

means responsive to said alternate character selection keylever for linking operated second means responsive to the actuation of said keylever to said second coding means, said first and second coding means jointly providing a mechanical output for said alternate character to be printed.

3. The alternate character selection mechanism of claim 2 wherein at least one single-character keylever is provided representative of only a first character to be printed, including:

means responsive to said single character keylever for operating said second coding means, said second coding means providing a mechanical output for said first character corresponding to said single character keylever regardless of whether said alternate character selection keylever is operated.

4. In a keylever controlled single element printing device having at least one keylever representative of both a first and alternate characters to be printed, including a type head having on its surface said first and alternate characters, head positioning means operatively connected to said type head for selecting said characters to be printed, first coding means capable of providing a mechanical output to said head positioning means for said first character to be printed, first means responsive to said keylever for operating said first coding means; an alternate character selection means comprising:

second coding means, said second and said first coding means together capable of providing a mechanical output for said alternate character to be printed;

second means responsive to said keylever for selecting said second coding means, said second means being responsive to a single actuation of said keylever;

third means responsive to said keylever for operating selected first and second means responsive to said keylever;

an alternate character selection keylever; and means responsive to said alternate character selection keylever for linking operated second keylever responsive means to said second coding means, said first and second coding means jointly providing a mechanical output for said alternate character to be printed.

5. In a typewriter having a type head with a plurality of characters mounted thereon, each of said characters selectable by a mechanically coded selection mechanism, said typewriter having a greater number of characters than keylevers, at least some of the keylevers corresponding to a first and an alternate character, where said alternate character is selectable by depression of an alternate character selection key, a plurality of keylevers, at least some of which correspond to both the first and alternate character to be printed; an alternate character selection means comprising:

a plurality of keylever responsive interposers each associated with one of said keylevers, each of said interposers capable of operating a different combination of latch interposers, and those of said interposers associated with keylevers corresponding to both a first and alternate character to be printed being additionally capable of operating an alternate character selection slide;

an alternate character selection slide;

a plurality of latch interposers at least some of which are responsive to operation of said keylever responsive interposers for applying a mechanical signal to said mechanically coded selection mechanism representative of said first character to be printed;

an alternate character selection keylever; and means responsive to said alternate character selection keylever and a keylever corresponding to both a first and alternate character to be printed to link said alternate character selection slide to one of said latch interposers for applying a mechanical signal to said mechanically coded selection mechanism representative of said alternate character to be printed.

6. The alternate character selection mechanism of claim 5 wherein at least some of said interposers associated with keylevers corresponding to only a first character to be printed operate said one of said latch interposers operated in response to said alternate character selection keylever and said alternate character selection slide, regardless of the position of said alternate character selection keylever.

7. In a typewriter having a type head with a plurality of characters mounted thereon, each of said characters selectable by a mechanically coded selection mechanism, said typewriter having a greater number of characters than keylevers, at least some of said keylevers corresponding to a first and alternate character, where said alternate

character is selectable by depression of a selection key; an alternate character selection mechanism comprising:

an alternate character selection keylever;

a selection element having at its one end a pawl actuating surface, said element being mechanically actuated by depression of said alternate character selection keylever;

an alternate character selection slide having at its one end an engaging surface and having mounted at its other end a pawl, said slide being yielding maintained in a retracted position above said selection element;

means supporting said slide to enable longitudinal movement thereof;

said pawl pivotably mounted on said slide and movable therewith, said pawl having a surface engaging element at its one end and said pawl being responsive to actuation of said selection element;

spring means connected between said pawl and said slide maintaining said pawl in a disengaged position; a mechanically coded character selection mechanism; a latch interposer located in a parallel spaced relationship to said slide, said latch interposer having a pawl engaging surface, and its one end linked to said mechanically coded character selection mechanism, said latch interposer being mechanically linked to said slide when said pawl is moved to an engaged position by said selection element;

means for supporting said latch interposer to enable longitudinal movement thereof; and

means responsive to the actuation of any of said plurality of keylevers corresponding to a first and alternate character to actuate said slide; a first character being mechanically selected upon actuation of said keylever corresponding to a first and alternate character, an alternate character being selected upon simultaneous actuation of both said keylever and said pawl.

8. The apparatus of claim 7 wherein said latch interposer further includes a bail engaging surface; and

bail means responsive to the actuation of at least some of said keylevers corresponding to only a first character, said bail means engaging said bail engaging surface to operate said latch interposer independent of said pawl, a first character being mechanically selected by said mechanically coded selection means regardless of the position of said pawl.

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EDGAR S. BURR, Primary Examiner

U.S. Cl. X.R.

197—16