Jan. 27, 1948. R. N. CUNNINGHAM 2,435,130

CRYPTOGRAPHIC ATTACHMENT FOR TYPEWRITER KEYS

Filed Oct. 5, 1944 2 Sheets-Sheet 1

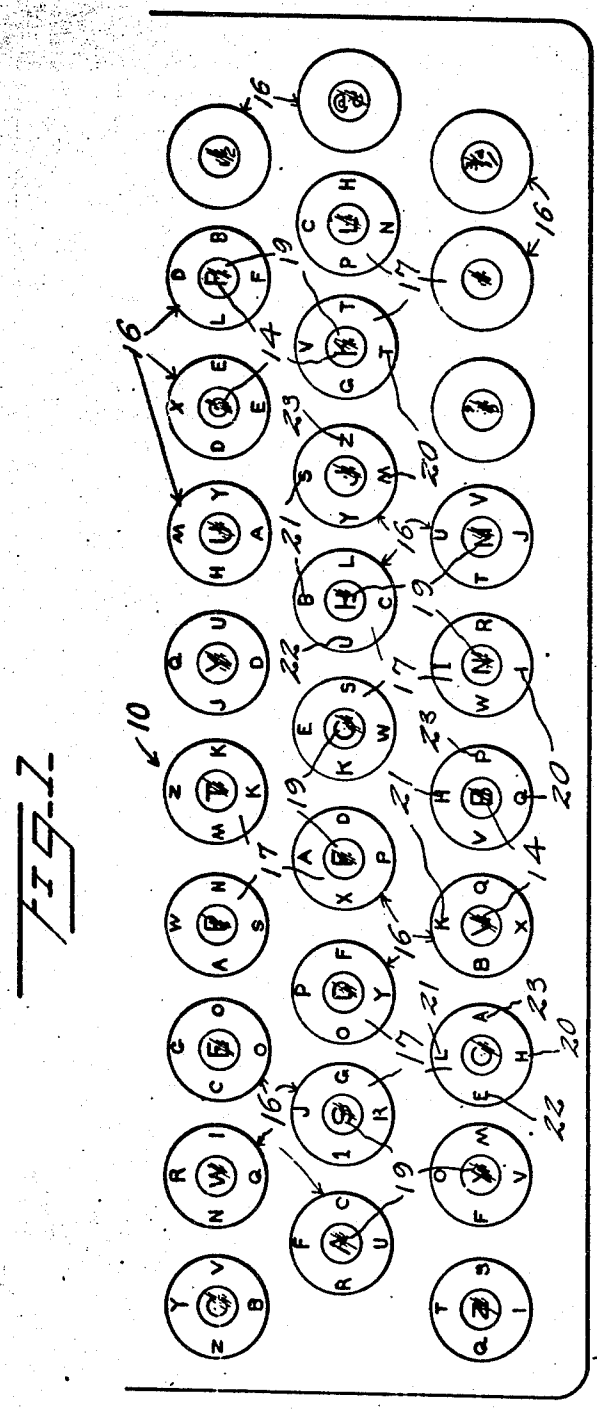


Fig. 1

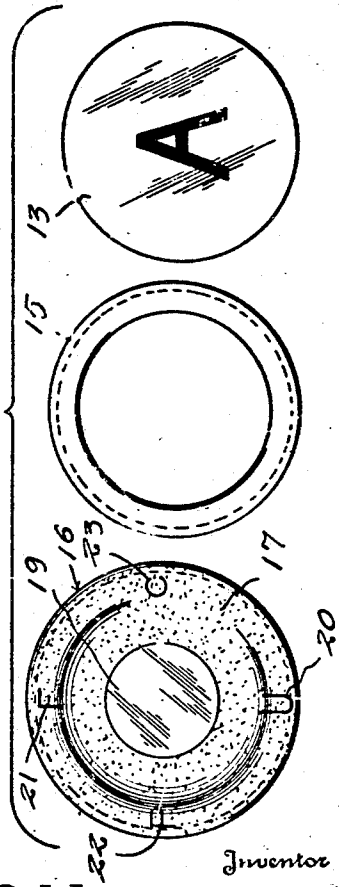


Fig. 3

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CRYPTOGRAPHIC ATTACHMENT FOR TYPEWRITER KEYS

Filed Oct. 5, 1944 2 Sheets-Sheet 2

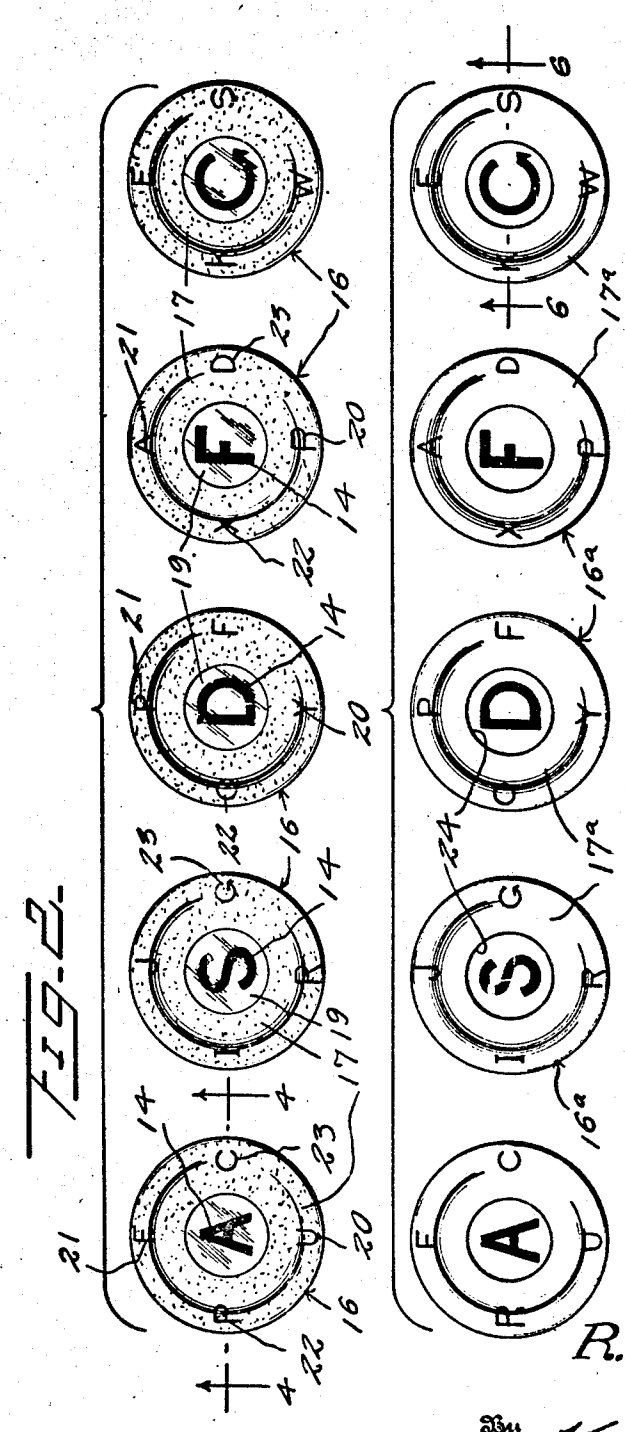


FIG. 2.

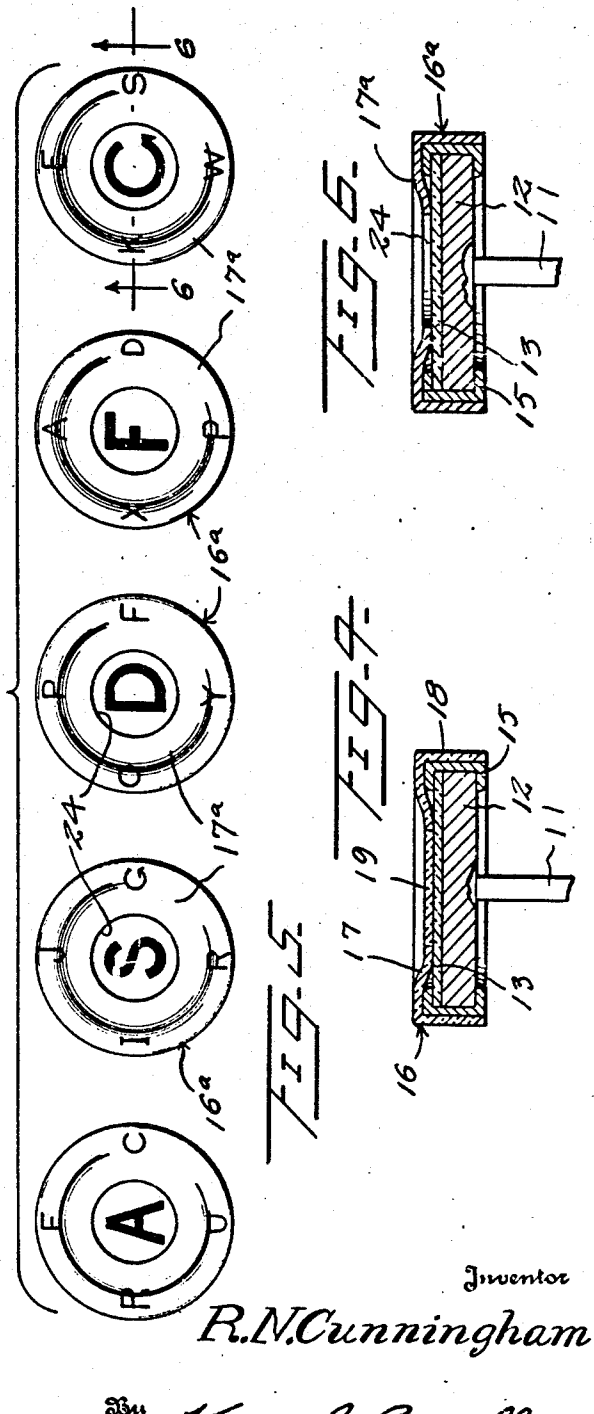


FIG. 5.

FIG. 6.

FIG. 4.

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CRYPTOGRAPHIC ATTACHMENT FOR TYPEWRITER KEYS

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2 Claims. (Cl. 197—4)

1

This invention relates to cryptograph systems and to a means for adapting an ordinary or standard typewriter keyboard to such system.

An object of this invention is to provide an attachment for the keys of a typewriter in the form of caps fitting over the present keys, the caps being in the form of removable code caps which are formed in such manner that the characters of the original keys are visible therethrough. In one form of the invention the code caps are formed with a top wall having a central transparent window whereby the characters of the original keys may be viewed therethrough, and in another form of the invention the top wall of the cap is formed with a central opening for exposing to view the character of the key. In each form of cap the arrangement of the code characters is the same, such characters being arranged circumferentially about the window.

The code system to be hereinafter described embodies four codes, each one of which is identified by a particular color and position on the code cap. In the coding of a message any single series of code characters may be used, or the coded words or groups of characters may embody two or more of the code series, and where two or more of the code series are used, the code series may be used in a prearranged sequence, and such sequence may also be varied for each coded group of characters, thereby forming a non-uniform code which will make it practically impossible to decode without prior knowledge of code series sequences used.

Another object of this invention is to provide an improved method of forming a code system which is capable of numerous variations or combinations of codes so that an uninformed decoder will be unable to translate or break the code.

To the foregoing objects, and others which may hereinafter more fully appear, the invention consists of the novel construction, combination and arrangement of parts, as will be more specifically referred to and illustrated in the accompanying drawings, but it is to be understood that changes, variations, and modifications may be resorted to which fall within the scope of the invention as claimed.

In the drawings:

Figure 1 is a diagrammatic view of a conventional typewriter keyboard, having a cryptographic means mounted thereon in accordance with this invention.

2

Figure 2 is an enlarged plan view of a series of typewriter keys having cryptographic caps mounted thereon.

Figure 3 is an exploded view showing in top plan the cryptographic cap together with the crimped holding ring for the conventional indicia plate on the key.

Figure 4 is a sectional view taken on the line 4—4 of Figure 2.

Figure 5 is a top plan of a series of keys having mounted thereon a modified form of cryptographic attachment.

Figure 6 is a sectional view taken on the line 6—6 of Figure 5.

Referring to the drawings, the numeral 10 designates generally a conventional keyboard for a typewriter, having key bars 11 formed with head 12 on which a plate 13 is mounted bearing the indicia 14. The plate 13 is held on the top of the head 12 by means of a crimped ring 15. A cap generally designated as 16 is mounted on the key, engaging about the ring 15, and includes a top wall 17, which is of concave configuration on the upper side and is provided with a cylindrical skirt 18 engaging about the ring 15 and frictionally held thereon.

The top wall 17 is preferably of opaque material and is formed with a centrally disposed transparent wall portion 19. The transparent wall portion 19 is provided so that the character 14 of the key bar will be visible through the cap 16. There is one cap 16 for each one of the key bars or keys.

In order to provide a means whereby the typewriter may be used for both coding and decoding a message, I have provided on the upper side of the top wall 17 about the window or transparent portion 19, a plurality of characters 20, 21, 22 and 23. The characters 20 to 23 are alphabetical characters, but are different from the character of the particular key bar. In arranging the several series of code characters, as herein disclosed, there are four series of code characters with the alphabetical characters of each series scrambled so that there will not be any definite sequence or relation of a code character to the normal alphabetical character on the key bar.

There is given below a tabulation, showing the

four code series and their relation to the normal alphabetical characters appearing on the key bars:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Code Series No.																										
1	U	Q	H	Y	O	P	W	C	Z	M	T	N	J	L	E	F	B	S	R	K	A	X	G	V	D	I
2	F	H	L	P	G	A	E	B	N	S	V	C	U	I	X	D	Y	W	J	Z	M	K	R	O	Q	T
3	R	V	E	O	C	X	K	U	S	Y	G	P	T	W	D	L	Z	A	I	M	H	B	N	F	J	Q
4	C	P	A	F	O	D	S	L	W	Z	T	H	V	R	E	B	V	N	G	K	Y	Q	I	M	U	J

The following is a simple form or use of the characters of each code series. As an example, the sentence, "The system has proved of value" is coded as follows for each of the four code series:

#1	KCORDRKOJ	CURFSEXOY	EPXUNAO
#2	ZBGJQJZGU	BFJDWXKGP	XAKFCMG
#3	MUCIJIMCT	URILADBCO	DXBRPHC
#4	KLOGUGKOV	LCGBNEQOF	EDQCHYO

Another method of using this code system is to use all four code series in the formation of the code words or characters, and the several series may be used in sequence. This sequence may be either in the sequence of the numbered series such as 1, 2, 3, 4, or the sequence may start with any preselected series:

	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1
#1	K	B	C	G	D	J	M	O	J	B	R	G	F	W	D	Q	O	P	D	D	X	F	P	Y	O
	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1	4
#4	K	U	G	R	U	I	Z	O	U	U	F	R	B	A	X	X	O	O	X	P	Q	R	C	A	O

Where the series of codes are used together and in sequence, the initial code word is preceded by the numeral of the first series of the sequence. As an example, if the sequence is 1, 2, 3, 4, the code word is:

#1 K B C G D J M O J

Where the code series is in reverse sequence, the code word is also preceded by the numeral designating the first series starting the word, such as

#4 K U G R U I Z O U

As another example, the code series may be used alternately, such as series 2 and 4, or reversely 4 and 2, as indicated below:

2	4	2	4	2	4	2	4	2	4	2	4	2	4	2	4	
Z	L	G	G	Q	G	Z	O	U	L	F	G	D	N	X	Q	G	F

Where alternate code series are used, the first code word is preceded by the two numerals designating the sequence of the code series, such as:

24 ZLGGQGZOU 42 LFGDNXQGF

The above are only a few examples of the manner in which the code series may be used. In order to assist in coding and decoding the message, the characters 20 of the first code series may be colored red; the characters of the second code series may be colored blue; the characters of the third code series may be colored red; and the characters of the fourth series may be colored black. It will, of course, be understood that the characters on the caps 16 of the coding and the decoding machine will be identical, and the differentiation in the colors of the characters of the different code series is designed to facilitate both the coding and the decoding of the message. However, if desired, the characters 20 to 23 may be all of the same color, and the coding and decoding of the message is accomplished by the particular positions of the code characters 20 to 23 on the surface of the cap.

In Figures 5 and 6 there is disclosed a slightly modified form of this invention, wherein the code caps 16a are formed with an opaque top wall 17a and the top wall 17a is formed with an opening 24 instead of a transparent window. The key bar character is visible through the opening 24 in the same manner as the key bar character is visible through the transparent window 19 of cap 16.

It will be understood that while reference is made to the code system embodying four codes, that there might be a lesser or a greater number than four, and it is contemplated that the invention shall be construed as being of such scope. Likewise, where the term cap is used, it will be understood to include a ring or a skirted annulus, the scope of the term being intended as a word of general designation and not as a word of limitation.

A feature of the invention is in the fact that the typist can use the machine in the ordinary manner with the standard keyboard, and, if desired, can switch at any point in the message to code merely by observing the selected adjacent symbol. This is a great advantage in a device of this character. Furthermore, in decoding, the typist can easily observe the standard letters as well as the selected code letters, no alteration of the keyboard or interference with the normal use of the machine being required.

What I claim is:

1. As a new article of manufacture a cryptographic attachment comprising a cap engageable over one key of a typewriter, said cap including a top wall having a central formation through which the character of said key will be visible, a cylindrical skirt about said top wall engageable about said key, and circumferentially spaced apart code indicia on the upper surface of said wall surrounding said central formation, said code indicia denoting characters different from the character of said key whereby a code character may be written or transcribed in accordance with any one of a plurality of different code systems by striking the key bearing the code indicia.

2. As a new article of manufacture a cryptographic attachment comprising a cap engageable over a key of a typewriter, said cap including a top wall having a transparent central panel whereby the character of said key may be viewed, a cylindrical skirt about said top wall engageable about said key, and circumferentially spaced apart code indicia on the upper surface of said top wall surrounding said transparent central panel, said code indicia denoting characters different from the character of said key whereby a code character may be written or transcribed in accordance with any one of a plurality of dif-

ferent code systems by striking the key bearing the code indicia.

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