J. W. WULF.

CODE DEVICE.

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1,271,000. Patented July 2, 1918.

Fig. 1.

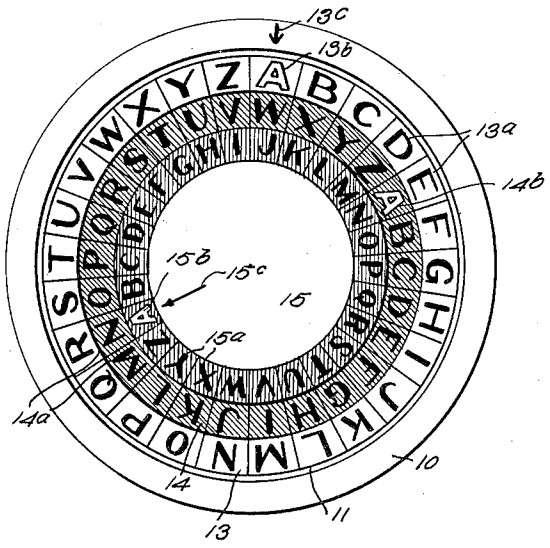
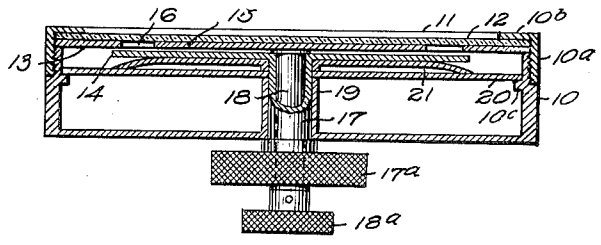


Fig. 2.



WITNESSES

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CODE DEVICE.

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To all whom it may concern:

Be it known that I, JOHN WILLIAM WULF, a citizen of the United States, and a resident of San Juan, Porto Rico, have invented a new and Improved Code Device, of which the following is a full, clear, and exact description.

My invention relates to a mechanical code device for making up messages in codex and for deciphering the same, the device being composed of a minimum number of simple elements capable of an infinite variety of combinations, so that it will be almost impossible to decipher the message without knowing the key-word or combination in the possession of the parties in correspondence.

The invention will be more fully explained in the specific description following.

Reference is to be had to the accompanying drawing forming part of this specification, and in which similar characters of reference indicate corresponding parts in both views.

Figure 1 is a plan view of a code device embodying my invention; and

Fig. 2 is a vertical section.

In constructing a practical embodiment of the invention in accordance with the illustrated example, a box-like casing 10 is provided which is generally of round form, and in practice may be made of a size to fit in the pocket of the user. The box is formed with an open top 11, and preferably there is fitted therein a transparent covering 12 made of glass or the like.

A disk with an open center, or rather a flat ring 13 is suitably supported in the casing 10 or formed therein. In the preferred construction the disk 13 is removably clamped in the casing beneath the transparent cover 12 by means of a removable cap ring 10^a having an inwardly extending annular flange 10^b overlying the cover 12. The disk 13 at the periphery rests upon the upper edge of the casing 10, the said casing being rabbeted or of reduced thickness and threaded to receive the cap ring 10^a. A second disk 14 is provided, which is mounted revolubly in the case 10 so as to turn relatively to the disk 13. A third disk 15 is mounted above the disk 14, preferably within and in the same plane as the disk 13, there being an annular space 16 between the disks 13 and 15, exposing to view an annular zone of the disk 14. The several disks, it will thus be seen, present concentric zones.

The outer disk 13 bears the alphabet 13^a in regular order and running clockwise around said disk. One letter of the alphabet, as "A" for instance, is differentiated from the others to give it cardinal value. The method of differentiation may consist of a different color, as indicated at 13^b. The cardinal letter 13^b may be further distinguished, to readily be located, by an arrow 13^c, or other arbitrary symbol. The disk 14 is a key disk for changing the key of the code, and it bears at the periphery the alphabet 14^a in regular order and running clockwise the same as the alphabet of the first disk. Similarly the disk 15 bears the letters 15^a of the alphabet running clockwise in regular order, both of the disks 14 and 15 having one letter, as the letter "A", differentiated at 14^b and 15^b. In order to hold the disks 13 and 14 in a given adjustment a friction device is provided which may be in the form of a dished spring 21 bearing at one side against the said disk 14, and bearing, at its edge, at the opposite side against a partition 20 or other element of the casing 10. Thus, normally, the spring 21 will hold the disk 14 against turning, but it may be optionally turned by the user.

As a means for turning the disks 14 and 15, the disk 14 has a hollow shaft 17 extending through a bearing 19 centrally in the case 10, and a shaft 18 on the disk 15 extends through the hollow shaft 17. The shaft 17 may have a knurled flange or nut 17^a for turning the same, and similarly the shaft 18 has a knurled head 18^a. The partition 20 may rest at the center on the bearing 19, and at its periphery on a ledge 10^c of casing 10.

The several disks desirably are distinguished from one another by colors, as, for instance, the smaller inner disk may be red, or have its letters in red. The next disk 14 may be of a green color, or have green letters, while the larger outer disk 13 may be white.

The messages are to be made up according to a key-word known to the parties in correspondence. The functions and character of the outer disk 13 are that of a reading disk in which the message and its equivalent are to be read in making up and translating a message; the disk 14 constitutes a

key-changing disk, or, as I will term it hereinafter, the key disk, while the disk 15 constitutes a translating disk. The respective disks with their alphabets and cardinal letters or key letters are so manipulated that, for a given key-word, the reading and key disks are adjusted to relatively position their cardinal letters, and the translating disk is then turned through a given angle relatively to the key disk, which will give a corresponding movement of the translating disk relatively to the reading disk, to thus position a message or code letter on the translating disk in radial alinement with its equivalent on the reading disk.

Assuming that the key word is "WILSON" and it is desired to send the message—"RIGHT WING IN DANGER COME QUICK"—and it was understood that every five letters complete a word, and that the key is to be changed for every word, the message having been written down we mark off every five letters, writing above each of such words or sub-division the corresponding letters of the key-word, thus:

W I L S O N
RIGHT WINGI NDANG ERCOM EQUIC K

We now cipher the word "RIGHT" as follows:

First we place the "W" of the key disk 14 radially in line with the cardinal letter "A" of the reading disk 13. We now place the letter "R" of the translating disk 15 radially in line with the cardinal letter "A" of the key disk 14, and we read on the reading disk 13 the letter in radial alinement with the cardinal letter (A) of the translating disk 15, which would be the letter "N" on said reading disk, since the cardinal letter of the translating disk 15 has been moved through the same arc relatively to both the key disk 14 and the reading disk 13. Having obtained the first letter "N" we now position the letter "I" of the word "RIGHT" under the cardinal letter (A) of the key disk 14, and we read radially on the reading disk 13 the letter "W." Next we position the letter "G" of the translating disk radially in line with the letter "A" of the key disk and read radially in the reading disk 13 the equivalent letter "Y." Next in succession the letters H and T of the word "RIGHT" are positioned in line with the key letter or cardinal letter "A" of the key disk 14, and we read in succession on the reading disk the letters "X" and "L." We thus have completed the first code word or sub-division of five letters, which in cipher will be NWYXL. Before translating the second word or sub-division of five letters we change the key for that letter. Previously we had the letter "W" of the key disk 14 alined radially with the cardinal letter "A" of the reading disk, and we now, for the second word "WINGI," change the key according to the letter "I" of "WILSON" by placing the said letter "I" of the key disk 14 in line with the cardinal letter "A" of the reading disk 13, and we are ready to convert into cipher the said word "WINGI" in the same manner in which we converted the word "RIGHT" into cipher; that is to say, we successively position the letters in "WINGI" in line with the cardinal letter "A" in the key disk 14, and thereby in succession read radially in the reading disk the code letters "WKFMK." Again, before writing the third sub-division or word "NDANG" we change the key disk according to the letter "L" in "WILSON," and so on through each successive sub-division, until we have produced the complete cipher—

NWYXLWKFMKCMPCJERGUWIWSEKD.

To decipher the message we proceed in the same way as we did in making it up. Knowing that the key-word is "WILSON" we put the "W" of the key disk in line with the cardinal letter "A," or key letter of the reading disk, and then turn the translating disk 15 to position the letter "N" of the ciphered word in line with the key letter "A" of the key disk 14, and read radially on the reading disk or dial 13 the letter "R," that is to say, the first letter of the word "RIGHT." The same process is continued until the word is completely deciphered.

After each change of the key disk 14 the spring 21 maintains the said disk immovable relatively to the reading disk or dial 13.

By the described construction, the device in practice may comprise an equipment including a series or plurality of sets of disks bearing the alphabets of different languages.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A code device comprising disks having their centers substantially in line, said disks including a reading disk, a code disk, said disks having the alphabet disposed thereon in regular order and in the same direction on each disk, one letter of each disk being differentiated to have cardinal value, the second disk being turnable relatively to the first disk to change the key by changing the relative positions of said cardinal letters, and a translating disk having the alphabet disposed in regular order and in the same direction as those of the other two disks, and having a letter differentiated to have cardinal value, the said translating disk being freely turnable relatively to the other two disks to variously position its cardinal letter relatively to the cardinal letter of the key disk, the reading and key disks being adapt-

ed to maintain a given adjustment during the turning of the translating disk, so that the turning of the translating disk through a given angle relatively to the key disk will give a corresponding movement of the translating disk relatively to the reading disk and thus will position a message or code letter on the translating disk in radial alinement with its equivalent on the reading disk.

2. A code device comprising a casing, a reading disk in fixed relation to the casing, a key disk having its center in line with the first disk and turnable relatively thereto, a spring bearing against a fixed member on the casing and against the key disk to yieldingly hold the said key disk against turning relatively to the first disk, and a translating disk having its center in line with the other two disks and freely turnable relatively thereto, each of the said disks having the alphabet thereon in regular order and in the same direction and each having one letter differentiated to have cardinal value, the turning of the translating disk through a given angle relatively to the key disk serving to give a corresponding movement of the translating disk relatively to the reading disk by reason of the holding effect of the spring, whereby to position a message or code letter on the translating disk in radial alinement with its equivalent on the reading disk.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

J. WILLIAM WULF.

Witnesses:
SALVADOR SUAN,
LUIS RIVERA.