No. 723,288. PATENTED MAR. 24, 1903.

H. S. LEWIS.

CIPHER KEY FOR CRYPTOGRAPHIC CODES.

APPLICATION FILED OCT. 26, 1901. RENEWED AUG. 15, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

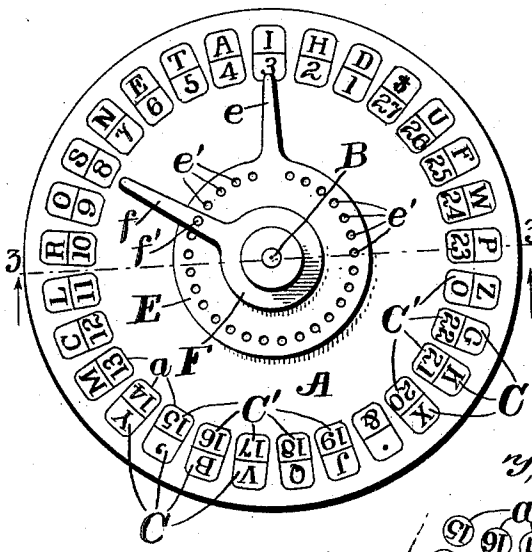


Fig. 2.

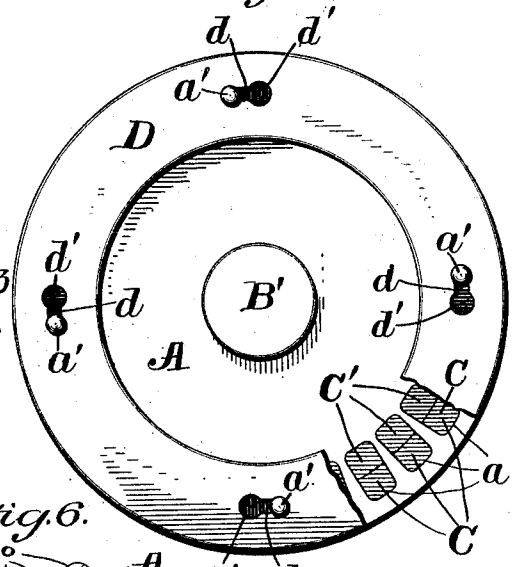


Fig. 6.

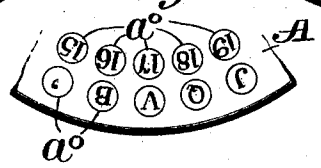


Fig. 3.

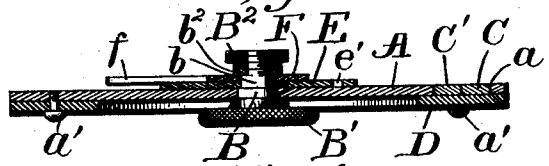
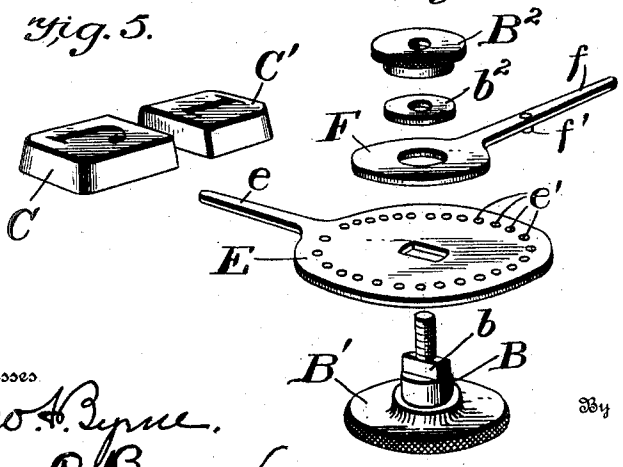


Fig. 4.

Fig. 5.



Witnesses

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 7.

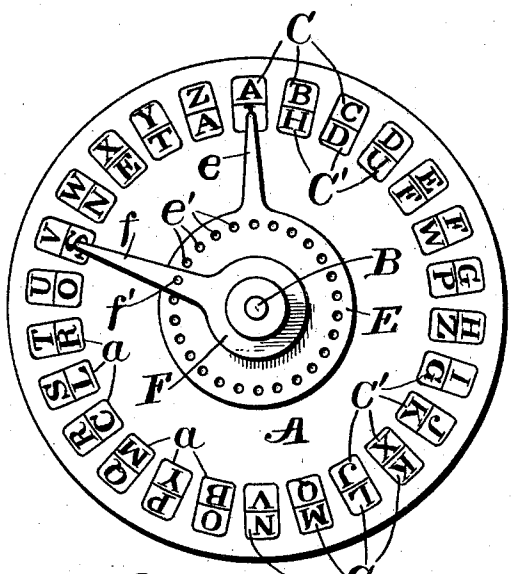
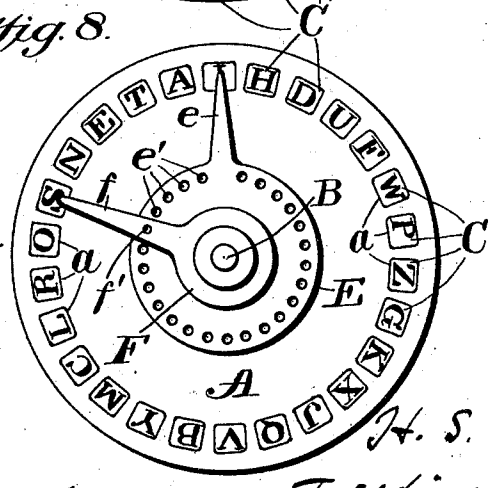


Fig. 8.



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UNITED STATES PATENT OFFICE.

HARRY SOUTH LEWIS, OF NEW ORLEANS, LOUISIANA.

CIPHER-KEY FOR CRYPTOGRAPHIC CODES.

SPECIFICATION forming part of Letters Patent No. 723,288, dated March 24, 1903.

Application filed October 26, 1901. Renewed August 15, 1902. Serial No. 119,829. (No model.)

To all whom it may concern:

Be it known that I, HARRY SOUTH LEWIS, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Cipher-Keys for Cryptographic Codes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in cryptographic systems and in apparatus for translating ordinary writing into cipher writing and vice versa; and it consists of a disk into which are fitted blocks carrying letters, numerals, or other characters and a ring detachably fitted to the said disk to retain the said blocks therein.

The invention further consists of pointers or indicators arranged to move over the face of the said disk, as will be hereinafter fully described and claimed.

Reference is had to the accompanying drawings, in which the same parts are indicated by the same letters of reference throughout the several views.

Figure 1 represents a plan or face view of my improved cryptographic device. Fig. 2 represents a view of the reverse side with part of the retaining-ring broken away. Fig. 3 represents a section through the device, taken on the line 3 3 of Fig. 1 and looking in the direction of the arrows. Fig. 4 represents in perspective the spindle, disks, and pointers carried thereby and the nut for retaining them in position. Fig. 5 represents in perspective one pair of the blocks which are fitted into the slots in the disk and have the characters fixed thereon. Fig. 6 is a detail view of a part of the disk, showing a slightly-modified arrangement of the blocks for carrying the characters. Fig. 7 is a view similar to Fig. 1, but showing a different arrangement of the characters. Fig. 8 is a view similar to Fig. 7, showing a device with only one set of characters.

The device consists, essentially, of a disk A, having a series of radial slots a and perforated in the center to receive a spindle B, which latter is free to turn therein. The slots a are smaller where they come through the face of the disk than at the back, and the blocks C and C′ (shown in Fig. 5) are of corresponding shape to fit tightly in the slots when pressed in from the back and are arranged in pairs, each pair fitting in one of the slots a. A ring D is placed against the back of the disk A to hold the said blocks in the slots, and the said ring is held by headed pins a', which pass through the enlarged ends d' of slots d in the ring D, which latter is turned to bring the narrow part of the slots d beneath the heads of the pins a', and thus retain the ring and blocks in position. The spindle B passes through the center of the disk A and is provided with a milled head B′ on the back of the disk by which the said spindle may be turned. The spindle B is flattened, as at b, where it projects through the front of the disk A, and a disk E is fitted on the said flattened portion to turn with said spindle. The disk E is provided with a pointer e and a series of holes e', arranged concentric with the center of the disk. A second disk F, having a circular opening in its center, is arranged to turn upon the spindle B and is provided with a pointer f, having a short pin f', adapted to rest in one of the holes e'. The disk F is held close down upon the disk E by a nut B^2, which screws down upon a washer b^2, and thus holds the disk F and pointer f down upon the disk E. This allows the disk F to turn on the disk E when the pin f' is raised out of the holes e'. This may be accomplished by raising the pointer f, which is sufficiently resilient to allow the pin to be raised clear of the holes e'.

In operating the device two or more correspondents agree upon the arrangement of the letters and characters upon the disk A, and also upon a system of characters indicating which of the holes e' the pin f' is to be placed in—as, for instance, should A send a message to B beginning "5 L," this would indicate that pin f' was placed in the fifth hole to the left of the pointer e, as shown in Fig. 1. Should the message be "Come to-morrow," the sender would turn the pointer e successively to the letters "C-O-M-E T-O-M-O-R-R-O-W" and for each one would write the letter indicated by the pointer f, which would be "V-Y-Q-L R-Y-Q-Y-'-'-Y-H." The recipient then places the pin f' of his machine in

the fifth hole to the left of the pointer *e* and turns the pointer *f* successively to the letters "V-Y-Q-L R-Y-Q-Y-'-'-Y-H." The pointer *e* of his machine would then indicate the letters "C-O-M-E T-O-M-O-R-R-O-W." It will be obvious that the relation of the pointer *f* to the pointer *e* may be changed after each message or even after each word and also that the arrangement of letters and characters may be changed at stated times by previous agreement.

In Figs. 1 to 5 I have shown a disk having elongated slots *a*, and blocks C and C' fitted in pairs in the said slots. While this would be the preferable form, it will be obvious that the disk might be made with round holes a^0, as shown in Fig. 6, the blocks being formed round to fit the said holes.

In Fig. 7 is shown an arrangement in which the number of slots in the disk correspond with the number of letters in the alphabet, no punctuation-points or numbers being used. In this arrangement the letters in the outside circle are placed in alphabetical order, and those in the inside circle being arranged in any order previously agreed upon. In sending a message with this device the pointer *e* may be turned successively to the letters in the outside circle, and the letters indicated by the pointer *f* in the inside circle are used for the cipher.

In Fig. 8 is shown a very simple form of the device in which only one circle of characters are used, the operation of which will be apparent without further description.

It will be understood that I do not wish to limit myself to the exact details of construction herein set forth, as slight changes or modifications may be made therein without departing from the spirit of the invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a cipher-code key, the combination with a disk having a plurality of characters disposed circumferentially thereon, a second disk provided with a pointer mounted on said first disk, a series of holes concentrically disposed around said second disk, a second pointer mounted in proximity to said first pointer, a pin on said second pointer adapted to enter the holes in said second disk, and means for rotating said pointers around the face of said first disk.

2. In a device of the character described, the combination with a disk, blocks carrying characters fitted in said disk, and means for retaining said blocks in said disk; of a spindle passing through said disk, a disk having a series of concentric holes, mounted on said spindle, a pointer on said disk, a second pointer mounted to turn on said spindle, and a pin on said pointer adapted to enter the holes in said disk, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HARRY SOUTH LEWIS.

Witnesses:
JOHN CASSIDY,
JNO. A. BARRETT.