

CONFIDENTIAL**CRYPTO AG.****ZUG**

Federal Cryptography Office

The Pocket Cryptographer Type CD-55

The machine type CD-55 has been designed for such use, where extreme portability is of prime importance, and where the direct printing of the text can be dispensed with.

Through the use of novel keying and translating mechanisms it has been possible for us to design a machine, with the following overall dimensions: Width 75 mm (3"), Length 125 mm (4 5/8"), Height (Thickness) 28 mm (1 1/8"). The weight of the machine is about 350 grams (12 1/2 ounces).

The machine has been developed with the following two principal uses in view: for military purposes - lowest echelons and very advanced positions - and for diplomatic use.

The machine is provided with a keying mechanism, which is equivalent to that in our mechanical machines of the ~~Cryptis~~ (including the ~~connector M-223~~).

The machine is operated in the following manner: After having removed the machine from its carrying case, the knob on its left hand side is pressed in as far as it can go, and released - when it will move outwards about 35 mm (1 1/2"). The lid of the machine is opened, the counter set at 0000, and the initial position is set, by arranging the key wheels according to agreement. Then the lid is closed.

For every letter to be ciphered or deciphered, the knob is pressed inwards, with the left hand thumb (the machine is held in the left hand) as far as it will go, and then released. When it has reached its outer position, the letter to be ciphered is located on the stationary outer ring, and the corresponding letter on the rotatable inner disk is read and noted by hand (or on a typewriter). When deciphering, the same procedure is used.

Important: The operating knob is during the operation pushed inwards against the tension of a spring, which after the knob having arrived

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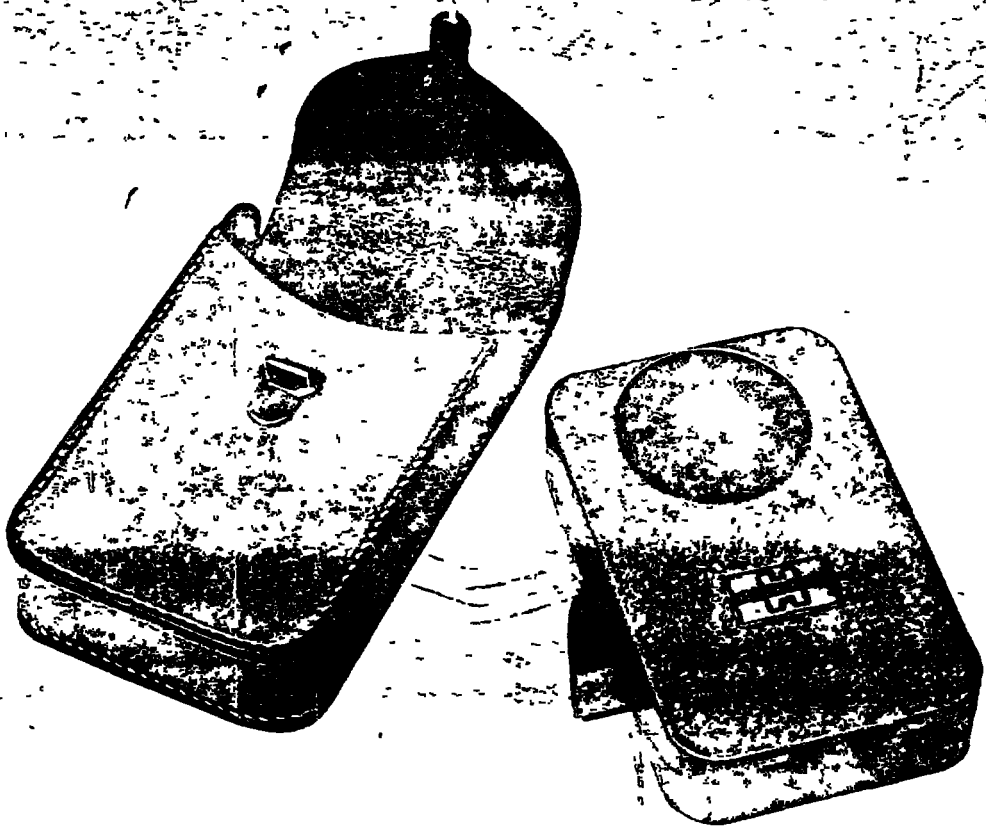
at its inner end position, returns it to outer end position. In order to ensure that the complete movement is obtained (which is necessary for the correct functioning of the machine), a check pawl is incorporated. This check pawl prevents the operating knob to return to its outer position before the inner end position is reached, and the operator is also prevented from pushing the knob inwards before the outer end position is reached. be therefore careful not to force the knob inwards if it is locked but make sure that it is allowed to go the full way out.

The main parts of the machine type CD-55 are the following:

1. The case, which consists of the bottom plate, which carries all parts of the mechanism, except the outer alphabet ring, which is lodged in the cover or lid of the machine.
2. The translating mechanism, which determines the positions, which the inner disk can take. This consists of six displacement disks, provided with stops, which can be arranged at will. We can for instance place the stop for the disk No. 1, so that this disk, when the stop is released, can turn a distance equal to one twenty-sixth of a revolution, the stop for disk No. 2, so that it will move $2/26$, disk No. 3 $3/26$, disk No. 4 $4/26$, disk No. 5 $5/26$, and disk No. 6 $6/26$, which will give all possible displacement steps from 0 to 25 for the inner disk. A large number of different stop settings can be used, as the mechanism allows a maximum rotation for the inner disk of 32 steps.
3. The keying mechanism: There will be choice of two different sets of key disks, one with ~~17, 19, 21, 23 and 25~~ divisions, the other with 29, 31, 37, 41, 43, and 47 divisions. To rearrange the pins, it will be necessary to remove the key disks from the machine, which is easily done. There are six sensing levers, which are caused to press against the key disks when the operating knob is in its innermost position: for those of the key disks, where the pin protrudes and encounters its corresponding sensing lever, the lever will remain inactive. Where on the other hand the lever can move towards the periphery of the key disk proper, the upper end of the lever will disengage the corresponding displacement disk stop. If thus, with the stops arranged as indicated above, the sensing levers No. 1, 3 and 6 become active, then the inner alphabet disk will rotate 15 steps

Encl: 1 Fig. 042

BE/gb
October 1942



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Taschenchiffriergerat Appareil à chiffrer de poche Pocket cryptograph	} CD - 55	Fig. 042
		Okt. 1955
CRYPTO AG. ZUG (Schweiz)		