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| Numbe- <br> Ezch <br> Action | 7rom | :'0: |  | Memorandum | $\mathrm{C}_{\mathrm{P}}^{\mathrm{C}}$ | $\begin{gathered} \text { Initials } \\ \text { and } \\ \text { Date } \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | TO: MR. C. A. ROWE, |  | - | 10. |

Reference is made to memorandum of Mr. William F. Friedman, dated October 4, 1935, transmitting a draft of specifications and drawings and a request that a pttent application be filed on his invention covering "Improvements in Cryptographs".

The Patent Section is hereby directed to take the necessary action to invoke the "three year rule" under the provisions of Section 4894 R. S., in accordance with the procedure initiated by order of the Chief Signal Officer on August 21, 1935.
(signed) Roger B. Col-on
Roger B. Colton, Lieut. Col., Signal Corps.
W.C.E.

## WAR DEPARTMENT

OFFICE OF THE CHIEF SIGNAL OFFICER
8
WASHINGTON
Movaiber 22, 1935

HEMOBADEXA TOz Mr. Rowo.

1. On page 4, Line 6, read "Yiga. 1-7" inatead of ${ }^{\text {migs. }} 1$ - 6".
2. On page 4, add after line 22: MIg. 7 is a mamatic diagran of a modification of the schome shown in Fig. 6."
3. On page 16, add the following:

A sixth subodimant of this iavention is shown in Fig. 7. In this form of the invention use is made of aingle ring conntators which serve both as substitution commatators and control comeratars in connection with a gang ewitch of 26 contacts operated by a universal bar.

Maving now particular reforence to Fig. 7, the elements shown therein are similar in construction and function with the corresponding clements shown in the preceding figure. In this enbodiment of the isreation, gang switch 85 is so constructed that when ady key is depressed, and univeral bar 44 1s actonted, witch levera 88, 188, 288, etc., disengage contacts $90,190,290$, etce, respectively, and engage coatacta 91, 191, 291, etc., rempectively. The operation of this form of the imvemtion is as foilows When a messege is to be enciphered, commatators 1, 2, 3, 4, and 5 are aligned to a prearranged kay and auitch 36 ia closed, setting up a circuit as followas Battery 16 through switch 36 , conductor 107, contant 90 , contact levar 88 , conductor 184 to contact 29 of end plate 301, through commatators 1, 2, 3, and 4 to comatator 5 mich directs the corrent beck through commitators 4, 3, 2, and 1 to contact 30a of ead plate 301, through conductor 284 to contact lever 288, contact 290, conductor 106 to contral maget 13 and thence beck to battery 16. Whan control maget 13 is enargised, commator 1 is rotated through $1 / 26 \mathrm{th}$ of a revolution; setting up a ner set of circuits through the cipher wheels. The device is now ready for enciphering the first letter of the message. If this latter is the letter $A$, the key corresponding to it is dapressed, and the contact levers of gang-uwitch 85 are caused to disengage the lower. set of 26 comtacts and engage the uppar aet of 26 contacts setting up a circuit as followas Iron bettery 16 through conductor 23 to contact 46, contect levar 18, contaet 91, contact lever 88, oonductor 84 to contact 29, throrgh and return through comatators 1 to 5 to contact 30 , condactor 184, contict lever 188, contact 191, comdnctor 93 to contact lever 19, contact 42, conductor 121 to indicating device 14 which corresponds to the letter $Q$, conductor 43, sitich 36 to battery 16. After the lettor $Q$ is soted, key $A$ is released, allowing the contact levers of gang aniteh 85 to dicengage the upper set of 26 contacts and engage the lower eet of 26
contacta. At the instant when contset levers 88 and 188 both engage controts 90 and 190 reapectively, a circuit is set up as followst Battery 16 through anitch 36 , conductor 107, contract 90 , conts:ct lever 88, conductor $\$ 84$ to contact 89 of end plate 301 , throufh commutator: 1, 2, 3 and 4 to comantator 5 which diracta the current back through comatator 4, 3 , 2 and 1 to contact 30 of and plate 301 , through conductor 184 to contact lever 188; contact 190, conductor 106 to control magnet 13 and thence back to bettory 16. When control magnet 13 is again enorgised, commatator 2 -1s sgein rotated through $2 / 26$ th of g revolution and again a new set of ciroults is set up in the comatator units. The device is now ready for enciphering the necond letter of the mensage."
4. On page 13, delete the first ten lines, snd lest three lines bagiming kith "If key A". On page 14, delete the firat eight lines.
5. Figure 5 is to be changed as por eample.

William F. Frituman.

Attached.

