

NAVY ECM Patent File

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PROPOSALS FOR MODIFICATION OF HEBERN ELECTRIC CODE
MACHINE.

The following proposals for modifying and improving the cipher machine submitted to this office for examination by the Hebern Electric Code Company, of Oakland, California, are hereby declared to be solely the results of my study of the aforesaid machine. This memorandum is for the purpose of officially recording these proposals. Claim is hereby made to all of these proposals, or to any combination of them, for the United States Government, commercial rights being reserved for myself.

I designate the cipher wheels, i.e., those containing electrical wiring, from left to right as one faces the key-board, by the numbers 1, 2, 3, 4, and 5, respectively.

PROPOSAL NO. 1.

That the mechanism for automatically advancing the cipher wheels be changed, by shifting the proper dogs on the shaft, so that:

- Wheel No. 3 is made to advance one step per depression of any key;
- Wheel No. 4 is made to advance one step per one complete revolution of Wheel No. 3;
- Wheel No. 2 is made to advance one step per one complete revolution of Wheel No. 4.

PROPOSAL NO. 2.

That all five cipher wheels be made to advance automatically as follows:

- Wheel No. 3, one step per depression of any key.
- Wheel No. 2, one step per one complete revolution of Wheel No. 3.
- Wheel No. 4, one step per one complete revolution of Wheel No. 2.
- Wheel No. 1, one step per one complete revolution of Wheel No. 4.
- Wheel No. 5, one step per one complete revolution of Wheel No. 1.

This is to be accomplished by a suitable arrangement of aluminum wheels, their advancing dogs, and the advancing-dog control-levers.

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PROPOSAL NO. 3.

That provision be made for easy change, at the will of the correspondents, of the positions of the advancing dogs on the shaft, so that the correspondents can regulate the method or order in which the advancing of any wheel is controlled.


PROPOSAL NO. 4.

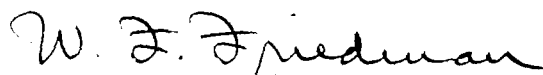
That provision be made for easy change, at the will of the correspondents, of the position of the notch, relative to the alphabet, on each of the aluminum wheels. For example, as now constituted, the notch is always opposite the letter A, allowing the advancing-dog control-lever to fall into the notch whenever the letter A on the aluminum wheels reaches the dog control-lever. This now happens each time that the letter N appears on the "setting" line, or line on which the key letters are set. As modified, any enemy cryptanalyst would not know when the dog control-lever falls into the notch, unless he had an identically arranged set of aluminum wheels.

PROPOSAL NO. 5.

That provision be made for the insertion of an easily removable plate at the rear of the machine, this plate to be so wired as to control the connections established at this point between (1) the key-board contacts and the conductors ultimately leading to the contacts of the left hand side of wheel No. 1, and (2) the light bank contacts and the conductors ultimately leading to the contacts of the right hand side of wheel No. 5, or vice versa, as the case may be. The insertion of a new plate completely changes the connections established at this point.

Disclosed on February 23, 1924 to


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