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# Special modifications in M-161 for a Smaller Cryptograph.

Declassified and approved for release by NSA on 09-10-2013 pursuant to E.O. 13526

This is to make a record of the date of conception of a combination of elements for a small field cryptograph based upon the M-161 principle.

1. Have a keyboard using a 5 or 6-element code in pairs, yielding <sup>a set of</sup> 25 or 36 equivalents, respectively. (Each key of keyboard controls two circuits, as in old electrical Swedish cryptograph)

2. Have a set of <sup>5 or more</sup> cryptographic rotors in ~~the~~ cascade. Each rotor has two concentric rings of contacts, each ring has 5 (or 6) contacts (depending upon whether a 25 or a 36-character alphabet is adopted for ~~use~~ use in this system). The circuits in the respective rings are kept within the respective rings, even though they zigzag through the margin.

3. Have end and intermed-iate 2-ring stators conformable to the type of rotors described in Par. 2

4. The <sup>two</sup> circuits, <sup>for each letter or character</sup> emerging from final or end stator are recombined in

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The usual manner ~~to~~ into cipher characters, and are printed by a printer based upon the 5 or 6-element code. [The two coordinates are combined in a system of 25 (or 36) combinations, operating a set of 25 (or 36) solenoids or magnets.]

5. The principal ideas in this invention is that of the 5 or 6 element <sup>passing through</sup> code, the double ring ~~rotor~~ rotors, and the recombination of the circuits in the final printing to represent cipher characters.

Declassified to es:

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