Invention of Mechanico-electrical Control of Cipher Wheels for Small Cryptograph.

1. Have 3 substitution wheels with Enigma type return circuit, and 2 control wheels also with Enigma type return circuit.

2. The control wheels are moved meter-like by universal bar. Period: 676.

3. The 25 available final resultants of control wheel circuit are divided up into 3 groups of primes. Example: Group 1, of 5 resultants, to control movement of substitution wheel 1; Group 2, of 9 resultants, to control movement of substitution wheel 2; Group 3, of 11 resultants, to control movement of substitution wheel 3. Other groupings of primes may be desirable.

4. The control wheel circuits merely operate small magnets which interpose stop-links between a rocker frame and recesses in the substitution wheels, or the teeth of a ratchet on substitution wheels. The rocker frame is operated mechanically by universal bar, or by hand lever, or foot lever, or by magnet.

Approved for Release by NSA on 09-30-2013 pursuant to E.O. 13526
Invention of mechanical electrical control of cipher wheels for small cryptographs.

1. Have 3 substitution cipher wheels with Enigma type patent circuit, and 2 control cipher wheels added with Enigma type retarding wheel.

2. The control wheels are moved with a motor-driven universal bar. Period: 0-76.

3. The 25 final results of control wheel circuit are divided up into 3 groups of primes. Example: Group 1 of 5 results, control movement of substitution wheel 1; Group 2 of 9 results, to control movement of substitution wheel 2; Group 3, 11 results, to control movement of substitution wheel 3. Other groupings of primes may be desirable.

4. The control wheel circuits merely operate small magnets which interpose stop-fingers between a rocker frame and the path of a rotating substitution wheel. The rocker frame is operated mechanically by universal bar, or by hand lever, or foot lever, or by magnet.

W.E.F.

C. L. Long

Sept. 3, 1935
1957-6

- Current in 1440
- Current into 980

- Magnets for stepping controlled by these

- Control wheels (some as capture wheels)

- These move in water-like manner, unwind bow steps wheel 5 times per dephasing, to once per 2x, 5 once per 676 - total 17576

- But these wheels are interchanging two seasons, which are all about changing of "17576 boys"

2 x 10 x 10 = 100

Aug 11, 1935

W.F.