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TO : Mr. W. F. Friedman, AFSA-14, Room 19232A, NCS DATE: 25 April 1950
FROM : Mr. Henry B. Stauffer, AFSA-03A5, Room 3109, NCS
SUBJECT: Hebern Preliminary Report

1. Cancel pages 4, 8, and 12 and substitute therefor Inclosures 1, 2, and 3 hereof.
2. Cancel pages 14, 15, and 16 and substitute therefor Inclosure 4 hereof.
3. Make Inclosure 5 a part of Exhibit B.

5 Incls

1. New pg 4
2. New pg 8
3. New pg 12
4. New pg 14
5. Add to Exh B


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Declassified and approved for release by NSA on
09-13-2013 pursuant to E.O. 13526

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constitute the Hebern Cryptographic maze. All of the claims call for a plurality of ratchet wheels and code wheels, each of the ratchet wheels having a peripheral flange thereon, the flange (or a cam notch therein, Claim 19) serving to control the stepping of some other ratchet wheel and one of the code wheels of the cryptographic maze. These claims, if infringed at all, are infringed only by the SIGFOY which, alone among United States Army devices, employs cam profiles on its rotors (similar to Hebern's flanges) to render inoperative the operative means for producing rotor movement. It can be fairly argued, however, that an integrated rotor assembly comprising circuit interconnections, stepping track, and peripheral cam profile (as used in the SIGFOY) is not the substantial equivalent of Hebern's code wheel, ratchet wheel with its peripheral flange, and connecting linkage. The point would be of less importance except for the fact that, if the Government unitary structure be considered the substantial equivalent of the arrangement of these claims from the standpoint of infringement, then it is possible that many claims of a later Hebern patent here involved (1,361,857) are void for double patenting. The presumption of validity as regards the early case thus might negate infringement of these claims. A further consideration along these lines is that the arrangement of Hebern provides a function impossible in the integral SIGFOY structure, namely: relative adjustment of code wheel and ratchet wheel. All of the claims of this group, furthermore, can be read as requiring a single casing notch (this is specific in Claim 19) and on this basis, alone, are not infringed;

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152,565, and (French), 514,062, and Claims 51 and 52 by the last-mentioned patents to A. B. Cryptograph. Additionally, it is likely that machines manufactured by Chiffriermaschinen Akt.-Ges., Berlin, and sold under the tradename "Enigma" (which would anticipate these claims), were known before the Hebern invention; but the earliest date that can so far be fixed is a demonstration in Switzerland in December, 1923.

5. a. With respect to Hebern patent 1,861,857, Claims 1 through 8 specify means for selectively preventing motion of one or more rotors in a cryptographic maze or for selectively varying the relative speeds thereof. Since no military cryptographs have "selective means for preventing normal movement" of the rotors (Claims 1 through 3) or "selective means for varying (their) relative speeds from zero to maximum speed" (Claim 5), these claims are considered not infringed. Claims 4 and 6 through 8, which cover selective means for varying the relative speeds of any one or more rotors, with no restrictions on the amount or type of variation, may be infringed by the SIGBRAT, but are thought to be anticipated by Kesh, 1,531,252, and possibly by A. B. Cryptograph (British), 197,763, and (French), 548,095; of interest also is Mahoe, 1,472,775;

b. Claims 9 through 13 are directed to means for controlling the code wheel (rotor) movement, such means comprising cam profiles "adapted to revolve with (a) code wheel" (Claims 9 and 13), or formed on the rotors themselves (Claims 10-12). The type of movement specified is such that any

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7. Since Army Security Agency contract files are fragmentary, and the Signal Corps has transferred many of its files to St. Louis, Missouri, for storage, no exhaustive study has been made of contracts relating to the development and procurement of Government cryptographic equipments. Most of these contracts contained so-called save-harmless indemnity clauses, but the clauses relieved the contractors of liability whenever their work was based on definite Government specifications, and this was the usual case. Three old contracts are known to have contained broader clauses, indicating contractor liability. Copies of these have been ordered but have not yet been received.

8. A list of the most significant patents considered in connection with the Hebern claim is appended, Exhibit B.

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PAGE 3

EXHIBIT B (contd)

<u>PATENTEE</u>	<u>COUNTRY</u>	<u>FILING DATE</u>	<u>PUBLICATION DATE</u>	<u>PATENT NUMBER</u>
Darr	United States	5 Nov 1909	10 May 1910	957,753
Stafford		14 Jun 1911	14 May 1912	1,026,473
Sorden		26 Apr 1900	24 Dec 1901	689,417