WAR DEPARTMENT

OFFICE OF THE CHIEF SIGNAL OFFICER

WASHINGTON

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MEMORANDUM RE CIPHER DEVICE M-138, SECTIONALIZED TYPE.

1. Let the sections be channeled on both obverse and reverse faces.

2. Assuming equal-width sections of 5-channels, with five sections comprising a set, the number of possible arrangements of sections totaling 50 different alphabet strips is 10 x 8 x 6 x 4 x 2 = 3840. With six sections (60 alphabets) the total number is 46,080 arrangements.

3. Unequal width sections may also be used in the same manner. With 5 sections of 3, 4, 5, 6 and 7 channels, the number of possible arrangements are also 3840. With seven sections 1, 2, 3, 4, 5, 6, 7 channels in width, the number of possible arrangements is 645,120.

                                        William F. Friedman

May 8, 1936.