

## EXTRACT FROM

Report of Signal Corps Laboratories for Month of December, 1930. Sheet #27.

Mechanical and Electrical Cipher Machines and  
Apparatus Electrical and Mechanical for Breaking  
Codes and Ciphers.  
Project No. 86

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1. Under the directive received from the Chief Signal Officer, November 28, 1930, for the construction of a field cipher machine, order has been placed for a 3-row portable typewriter to be used in the construction of this machine.
2. Inquiry was made of the Wallace-Tiernan Company, Newark, to determine whether there was any readily procurable commercial device which could be used for the cipher disk stepping forward mechanism. This concern manufactures electrical clocks and it was thought that such a clock mechanism could be utilized instead of a motor. Two clock relays were purchased to be utilized as a basis of experimentation in this respect. It is believed, however, that sufficient power can not be developed with these means and it is likely that a motor will be used to preserve tension on the spring which operates the cipher disk.
3. An idea has been conceived for a practical method of stopping the speeding cipher disk without undue shock. This arrangement provides that the wheel be stopped by a relay armature working on the cipher wheel through a reduction gear train. There being 26 stop positions on the cipher wheel, this rear ratio will be made 26 to 1.
4. Preliminary considerations indicated the likelihood that due to the pressure of other work in the shop, it would be necessary that a machine of this type be manufactured by some outside agency. It developed however, that the cost of development outside the laboratory would be prohibitive. Consequently, the work on the first model will be done within the Laboratories.