

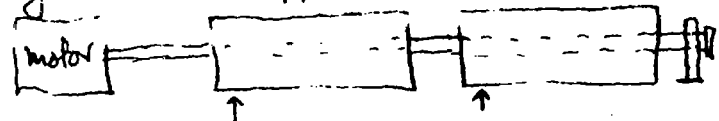
Witnesses: Frank B. Rowlett  
to disclosure → Office Chief Signal Officer  
Washington, D.C.  
January 24, 1936.

Inventor: William F. Friedman  
Washington, D.C.  
January 24, 1936

# Invention of System and Apparatus for Enciphering and Deciphering telephoto-transmitted messages, sketches, photographs, documents, etc.

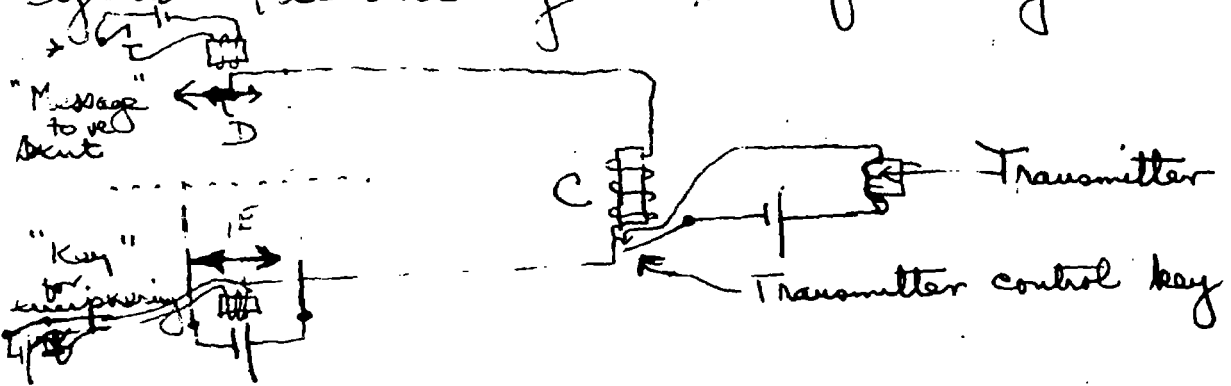
Friedman, W. F. 1936, 1-24-36

1. The document to be transmitted electrically is mounted upon A, one of two twin cylinders, on the other of the twin cylinders, B (driven by the same shaft) is mounted a "key" photo, consisting of any arbitrarily selected photo, sketch, drawing, arrangement of lines, points, etc., having no intelligible "words" in itself. This is the equivalent of a random, unintelligible key.



2. A twin scanning system is provided for the cylinders, according to the following circuit:

Relay to operate contact-making member D



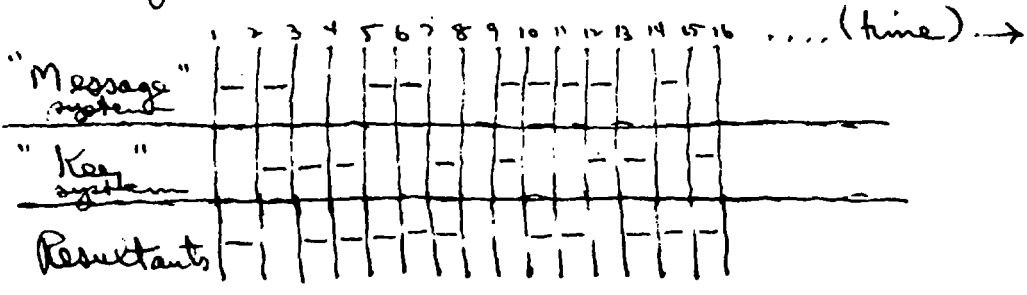
Relay to operate contact-making member E

3. The "message" transmission elements consist of impulses as in usual forms, distributed in time. The "key" transmission elements also consist of ~~elements~~ impulses distributed in time. As shown in circuit diagram the relay C operates only when two of four possible

Conditions exist:

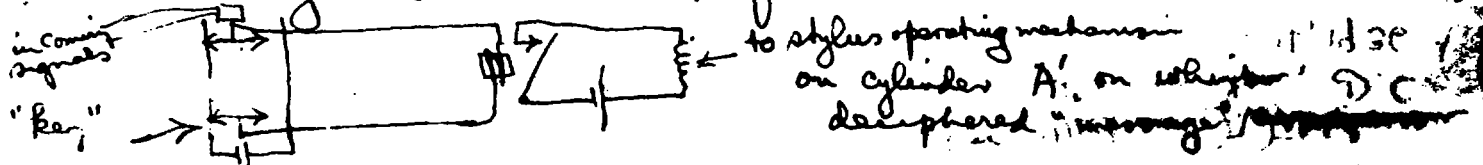
- 1) An impulse in "message" occurs simultaneously with an impulse in "key"; result, no operation of relay C.
- 2) An impulse in "message" meets no impulse in "key"; result, relay C is actuated.
- 3) No impulse in "message", ~~but~~ when an impulse is given by "key"; result, relay C is actuated.
- 4) No impulse in either "message" or "key"; result, relay C is not actuated.

4. Diagrammatically, the foregoing is represented as follows, in which dashes indicate presence of impulses:



5. The impulses transmitted have <sup>no</sup> relation to the message to be conveyed, except through the intermediary of the impulses from the "key". Hence, at the receiving end an exact duplicate of the "key" at the transmitting end must be on hand. The two stations must of course be synchronized, as is now the case in prevailing systems.

6. Let the receiving end the reciprocal arrangement of received impulses and key impulses results in "deciphering" the message. The circuit for this is shown:



ROUTING AND WORK SHEET

(Par. 40.62 b O.R.)

Subject Patent Application on Facsimile Encipherment

Number each Action	To-	Memorandum	Name, division or branch, and date
1	Mr. Hall, Patents Sec. Legal Div., OCSigO.	<p>In accordance with our telephone conversation a few days ago, I am sending you herewith a copy of the sketches, description and correspondence relative to certain systems for enciphering facsimile which were conceived and forwarded to the Patent Section a number of years ago. I hope that it is not too late to file <sup>on</sup> either of both of these systems and, in view of the fact that processing was not started soon after the recommended action of the Patents Board, I would like to suggest that these cases be given some priority if possible. I am particularly interested in the one dated January 24, 1936 because I believe it would be much more practicable than the other in connection with present facsimile systems.</p> <p>Incls.</p>	<p>W. F. F. Wm. F. Friedman Sig. Intel. Serv. 6-6-42</p>