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PAPER No. 18

All communications respecting this application should give the serial number, date of filing, name of the applicant, and appeal number.

In re application of
William F. Friedman

Ser. No. 478,193
Filed Mar. 6, 1943
For SYSTEM FOR DECIPHERING FACSIMILE

Appeal No. 21,161

Before the Board of Appeals

U. S. PATENT OFFICE

OCT 11 1949

MAILED

EXAMINER'S STATEMENT

This is an appeal from the final rejection of claim 14.

Claims 1, 2, 3, 4, 8, 9, 10, 11 and 12 have been cancelled.

Claims 5, 6, 7, 13 and 15 stand allowed.

The appealed claim is as follows:

CLAIM 14. Means for secretly transmitting graphic information comprising a device for scanning and representing said graphic information as a series of electric impulses of varying intensity, a camouflage message, a second device arranged for scanning said camouflage message and reproducing the same as a second series of electric impulses of varying intensity the impulses of said second series being nonsynchronous with the impulses of said first series, an electromechanical interlock connected under the control of both of said series of impulses for energization whenever predetermined combinations of impulses occur in the two said series of impulses, and a transmitter controlled by said interlock and adapted to emit impulses whenever said interlock is energized.

REFERENCES

Vernam	1,310,719	July 22, 1919
Cartier	1,866,967	July 26, 1932

APPLICANT'S DISCLOSURE

Applicant's disclosure relates to a facsimile enciphering system.

In Fig. 1 of the drawings are shown two facsimile scanners comprising two transparent scanning drums 3 and 5 mounted for concurrent rotation. On one drum (4) is placed the message sheet which may bear any type of information such as writings, maps, drawings, etc. In the other drum (5) is placed a ciphering sheet which may bear random patterns, writings, etc.

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REF ID:A362674

The light from sources 7 and 8 passing to cells 10 and 11 respectively is modulated by the information carried on the associated sheets in a conventional manner.

Dependent upon whether cells 10 or 11 are energized by the passage of light from their respective sources, relays 14 and/or 15 will be operated. If both relays tongues 16 and 17 assume the same position no energizing circuit for relay 23 will be completed. If the two tongues however, assume opposite positions a circuit will be completed through battery or source 22 to operate relay 23 and associated tongue 24. Thus the operation of relay 23 which keys transmitter 27 to emit signals is dependent upon a composite of the electrical signals generated by cells 10 and 11 in response to the subject matter on sheets 4 and 6.

Fig. 2 shows the operation of relay 23 in tabular form. For example, referring to column 1 of Fig. 2, if cell 10 is energized relay 14 will operate its tongue 16 to the left. Also if simultaneously cell 11 is deenergized spring 19 will hold tongue 17 to the right. Thus a circuit will be completed through battery 22 to energize relay 23 to cause transmitter 27 to emit a signal.

Column 2 of the chart shows the result when both relays 14 and 15 are energized. In this case no circuit including the battery will be completed and therefore no signal will be transmitted.

Column 4 shows the result when both relays 14 and 15 are deenergized and the result will be the same as that of column 2.

Column 3 shows the result when relay 14 is deenergized and relay 15 energized. In this condition relay 23 will operate to cause transmitter 27 to emit a signal.

The operation of the receiver need not be described since it is not involved in the claim under consideration.

REF ID:A362674

REFERENCES

Cartier 1,868,967--

This patent is directed to a telegraph enciphering system. The transmitter system is most clearly shown in Fig. 2 of this patent wherein are shown schematically two adjacent tape telegraph sensing units U and N. These two units are designed to operate with a conventional five-unit telegraph code wherein each character is represented by a permutation of five positive or negative impulses. Therefore for each successive message character in unit U the elements K will be moved permutatively to contact either positive bar A1 or negative bar A2. A similar operation will occur in coding unit N which operates its bars K1 in accordance with a random ciphering tape.

The composite operation of bars K and K1 will control "interlock" relays J. For example, the 1st left bar K is shown contacting positive bar A1 and the 1st left bar K1 is also contacting positive bar K1. Since both bars K, K1 are at the same potential relay J will be in its upper position.

The next adjacent bar K is also shown in the upper position but corresponding bar K1 is in the lower position. Thus a circuit through the battery connected to bars A1 and A2 is completed to cause operation of the associated relay J to the lower position in contact with bar P2 and thus apply negative potential to the associated distributor segment. The rotating brush b1 sweeps the segment and distributes the pulses to the line sequential.

Vernam 1,310,719--

The Vernam patent is similar to that of Cartier. Briefly in Fig. 1 at C is shown the message transmitter and at D the cipher tape transmitter. Dependent upon the operation of the two transmitters relays 19 to 23 inclusive will be operated or not operated so as to apply a coded message to the transmitting distributer D.

REF ID:A362674

REJECTION

Claim 14 stands rejected as being unpatentable over Cartier or Vernam. The claim is considered readable on the cited patents as follows:

"Means for secretly transmitting graphic information"

Both Cartier and Vernam relate to secret telegraphy systems.

"comprising a device for scanning"

An automatic tape transmitter may be substituted for the keyboard transmitter C of Vernam. See Vernam spec. page 1, lines 91 to 97 inclusive, and lines 103 to 107 inclusive.

A tape transmitter is a "device for scanning" since it senses successive portions of a tape.

A similar tape transmitter could be substituted for the keyboard transmitter U of Cartier because Vernam stated such a substitution was known in the art at least eight years prior to Cartier's application.

" and representing said graphic information as a series of electric impulses of varying intensity,"

The graphic information to be conveyed is translated through the medium of the tape in the transmitter into a series of impulses of varying intensity.

In Cartier the intensity of the pulses varies from a negative value to a positive one as the bars K are moved either to bar A1 or A2.

In Vernam the intensity of the impulse in transmitter C vary from open circuit to closed circuit, i.e. no voltage or voltage.

" a camouflage message,"

The camouflage message is represented by the code tape in transmitter D of Vernam and transmitter N of Cartier. Vernam page 3, lines 13 to 20 inclusive and Cartier page 2, lines 55 to 67 inclusive.

REF ID:A362674

> "a second device arranged for scanning said camouflage message and reproducing the same as a second series of electric impulses of varying intensity"

This clause is readable on unit D of Vernam or unit N of Cartier in the same manner as has been set forth as to the first device.

> "the impulses of said second series being nonsynchronous with the impulses of said first series,"

It is submitted that the operation of bars K with respect to bars K1 of Cartier for example, is "non-synchronous". Webster's New International Dictionary Unabridged 1940 Edition defines "synchronous" under the subtitle of PHYSICS as meaning--

"having the same period and phase".

Each bar K can have two positions with respect to each corresponding bar K1. In either position the bars K1 can be either positive or negative with respect to the corresponding bar K.

Therefore the impulse occurence in Cartier's system can be termed "nonsychronous" since the pulses do not necessarily have the same phase.

The term is similarly applicable to Vernam.

It is further noted that there is no structure recited in the claim to ascribe a particular meaning to the word "nonsynchronous".

> "an electromechanical interlock connected under control of both series of impulses for energization whenever predetermined combinations of impulses occur in the two said series of impulses,"

The relays J of Cartier and relays 19 to 23 inclusive of Vernam constitute an electromechanical interlock under control of the two series of impulses. In Cartier the relays J are controlled by bars K and K1 acting together while the relays 19 to 23 inclusive are controlled by devices C and D acting together.

REF ID:A362674

" and a transmitter controlled by said interlock and adapted to emit impulses whenever said interlock is energized."

The distributor D1 of Cartier and distributor A of Vernam are transmitters controlled by the interlock.

In Cartier the interlock relays J apply resulting coded signals to the segments of the distributor D1, while in Vernam relays 19 to 23 inclusive apply the coded signals to A.

Both distributors are adapted through the rotation of their associated brushes over the segments to transmit impulses to the respective lines.

For the foregoing reasons the rejection of claim 14 is believed proper and should be affirmed.

Respectfully submitted,

SWC/ls

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