I claim : -

- 1. In a cryptograph, a keyboard comprising character elements in operative electrical connection with corresponding signaling elements; means comprising a set of juxtaposed, rotatable commutators for varying the connections between the keyboard elements and said signaling elements; a cipher-key transmitter; and me as coordinated with the transmitter to effect permutative, stepwise displacements of the commutators.
- 2. In a cryptograph, a keyboard comprising character elements in operative electrical connection with corresponding signaling elements; means comprising a set of juxtaposed, rotatable commutators for varying the connections
 between the keyboard elements and said signaling elements; a cipher-key transmitter mechanism; and means coordinating said mechanism with the commutators
 to effect permutative, stepwise displacements of the commutators.
- 5. In a cryptograph, a hopboard comprising character elements in operative electrical connection with corresponding signaling elements; means comprising a set of juxtaposed, rotatable commutators for varying the connections between the keyboard elements and said signaling elements; a cipher-key transmitter mechanism; and a series of commutator stepping mechanisms, the cipher-key transmitter mechanism being operatively associated with the commutator stepping mechanisms to effect permutative, stepwise displacements of the commutators.
- 4. In a cryptograph, a keyboard comprising c aracter elements in operative electrical connection with corresponding signaling elements; means comprising a set of juxtaposed, rotatable commutators for varying the connections between the keyboard elements and said signaling elements; a plurality of cipherakey transmitters; and means coordinating said transmitters to effect permutative, stepwise displacements of the commutators.

- operative electrical connection with corresponding signaling elements; means comprising a set of juxtaposed, rotatable commutators for varying the connections between the kdyboard elements and said signaling elements; a plurality of cipher-key transmitters; a series of commutator stepping mechanisms each comprising a magnet and associated ratchet and pawl, the set of commutator stepping mechanisms being controlled by the said cipher-key transmitters associated as a group and coordinated collectively to effect permutative, stepping displacements of the commutators.
- operative electrical connection with corresponding signaling elements; means comprising a set of juxtaposed, rotatable commutators for varying the connections between the keyboard elements and seld signaling elements; a cipher-key transmitter mechanism; and means coordinating said mechanism with the commutators to effect permutative, stepwise displacements of the commutators, the cipher-key transmitter mechanism being controlled by a keying element
 - 7. In a cryptograph, a keyboard comprising character elements in operative electrical connection with corresponding signaling elements; means comprising a set of juxtaposed, rotatable commutators for varying the connections between the keyboard elements and said signaling elements; a plurality of cipher-key transmitters; and means coordinating the transmitters to effect permutative, stepwise displacements of the commutators, the transmitters being controlled by separate keying elements which are external to and independent of the cryptograph.

- 6. In a dryptograph, a keyboard comprising character elements in operative electrical connection with corresponding signaling elements; means comprising a set of juxtaposed, rotatable commutators for varying the connections between the keyboard elements and said signaling elements; a cipher-key transmitter mechanism; and means coordinating said mechanism with the commutators to effect permutative, stepwise displacements of the commutators, the cipher-key transmitter mechanism being controlled by a the keying element which is external to and independent of/cryptograph, and which includes a perforated tape bearing perforations permuted in accordance with a plurel-unit code to represent characters in that code.
- 9. In a cryptograph, a keyboard comprising character elements in operative electrical connection with corrdsponding signaling elements; means comprising a set of juxtaposed, rotatable commutators for varying the connections between the keyboard elements and said signaling elements; a plurality of cipher-key transmitters; and means coordinating the transmitters to effect permutative, stepwise displacements of the commutators, the said transmitters being controlled by separate keying elements which are external to and independent of the cryptograph, and which include perforated tapes bearing perforations permuted in accordance with a plural-unit code to represent characters in that code.
- operative electrical connection with corresponding signaling elements; means comprising a set of impressed, rotatable commutators for varying the commutations between the keyboard elements and said signaling elements; a plurality of cipher-key transmitters; and means coordinating the transmitters to effect permutative, stepwiss displacements of the commutators, the said

external to and independent of the cryptograph, and which include perforated tapes bearing perforations permuted in accordance with a plural-unit code to represent characters in that code, the numbers of such characters in the respective tapes being prime to one another.

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- 11. In a cryptograph of the character described, the combination of a set of juxtaposed, rotatable commutators; a set of commutator stepping mechanisms; and a plural-unit-code cipher-key transmitter.
- 12. In a cryptograph of the character described, the combination of a set of juxtaposed, rotatable commutators; a set of commutator stepping mechanisms; and a plural-unit-code cipher-key transmitter for controlling the commutator stepping mechanisms to effect permutative, stepwise displacements of the commutators.

Oproping.

- 13. In a cryptograph of the character described, the combination of a set of juxtaposed, rotatable commutators; a set of commutator stepping mechanisms; and a plurality of plural-unit-code cipher-key transmitters.
- 14. In a cryptograph of the character described, the combination of a set of juxtaposed, rotatable commutators; a set of commutator stepping mechanisms; and a plurality of plural-unit-code cipher-key transmitters electrically associated for collectively controlling the commutator stepping mechanisms to effect permutative, stepwise displacements of the commutators.
- is. In a cryptograph of the character described, the combination of keyboard elements and signaling elements; a set of juxtaposed, rotatable communicators for varying the connections between the two sets of elements; a series of commutator stepping mechanisms for displacing the respective commutators in a stepwise manner; and a plural-unit-code cipher-key transmitter for controlling the commutator stepping mechanisms to effect the stepwise displacements of the commutators in a permutative manner.

- of keyboard elements and signaling elements; a set of justaposed, rotatesble computators for varying the commentions between the two set of elements; a set of commutator stepping mechanisms for displacing the respective commutators in a step-wise manner; and a plurality of plural-amit-code cipher-lay transmitters for collectively controlling the commentators in a permutator and a plurality of plural-amit-code cipher-lay transmitters for collectively controlling the commentators in a permutative state of the descriptors.
- elements sonstituting a keyboard, and a set of elements constituting a signal fels the character security suferricated nating banks a set of juxtaposed, rotatable switching devices for varying the testical helphatens the two sets of elements; and means for effecting step-
- Is. A mechanism of the character described, comprising a set of elements constituting a signard under the factor of the set of elements constituting a signard under the constituting a signal party of the set of juriaposes, rotatable switching devices for varying the ponnections between the two sets of elements and means for effecting step wise displacements of the switching devices in an aperiodic manner, said means being controlled by an element which is external to and independent of the medianism itself.
- A medianism of the character described, comprising a set of elements bonstituting a elejoint which westwall connections between the product and path of characters
 saling banks a set of jurisposed, robetable switching devices for varying
 the commedians between the two sets of elements; and means for effecting
 stopping displacements of the switching devices in an aperiodic manner, the
 stopping displacements of the set of switching devices being permatative in
 sharester;

- elements constituting a keyboard and a set of elements constituting a signal including to condition to the set of elements constituting a signal including to conditions to the set of elements; means for varying the connections between the two sets of elements; means for effecting etapwise displacements of the switching devices in an aperiodic manner, the etapwise displacements of the set of switching devices being permutative in character, the permutations of said displacements being determined by an external key.
- elements constituting a keyboard and a set of elements constituting a signal with day except between part of elements devices for varying naling bank; a set of juxtaposed, rotatable switching devices for varying the connections between the two sets of elements; means for effecting stepwise displacements of the switching devices in an aperiodic manner, the displacements of the set of switching devices being permutative in character; and means comprising an external key for determining the permutations of said displacements, said key comprising a non-repenting sequence of ciphering characters arranged in random, unintelligible order.
- elements constituting a keyboard and a set of elements constituting a signal for a set of placements constituting a signal for a set of juxtaposed, rotatable switching devices for varying the connections between the two sets of elements; means for effecting stepwise displacements of the switching devices in an aperiodic manner, the displacements of the set of switching devices being permutative in character; and means comprising an external key for determining the permutations of said displacements, said key comprising a non-repeating sequence of ciphering characters arranged in random, unintelligible order, and the said ciphering characters being employed successively to encipher successive characters of the message.

- elements constituting a keyboard and a set of elements constituting a cricial connections between and a set of elements constituting a signaling bank; a set of juxtaposed, rotatable switching devices for varying the connections between the two sets of elements; means for effecting stepwise displacements of the switching devices in an aperiodic manner, the displacements of the set of switching devices being persutative in character; and means comprising a plurality of independent but interacting external bars for determining the persutations of said displacements.
 - elements constituting a keyboard and a set of elements constituting a circuit connections between and pet of elements constituting a circuit connections between and pet of elements; seek of participated, rotatable switching devices for raying the commettens between the two sets of elements; means for effecting stepwise displacements of the switching devices in an aperiodic manner; the displacements of the set of switching devices being permutative in gharmster; and means comprising a plurality of independent but interacting external keys for determining the permutations of said displacements, each of said keys comprising a non-repeating sequences of ciphering characters arranged in random, unintelligible order.
 - elements constituting a keyboard and a set of elements constituting a significant constituting a keyboard and a set of elements constituting a significant constituting a keyboard and a set of elements constituting a signaling bank; a set of justaposed, rotatable switching devices for varying the connections between the two sets of elements; means for affecting stepwise displacements of the switching devices in an appriodic manner, the displacements of the set of switching devices being permutative in character; and means comprising a plurality of independent but interacting external keys

for determining the permutations of said displacements, each of said keys comprising a non-repeating sequence of ciphering characters arranged in random, unintelligible order, and the interaction of the said keys producing a resultant single key consisting of an unintelligible sequence of characters which serves as the cipher key to encipher the successive characters of the message.

26. In a cryptographic system employing an element upon which a plain-text character is established and an element upon which a cipher character is established, and including a set of juxtaposed, rotatable ewitching devices operatively interposed between said elements; the mathod of enciphering which consists in continuously varying the cipher resultant of a given plain-text character by externally and aperiodically controlling the displacements of said periodical permutatively and in a step-wise manner.

27. In a cryptographic system employing an element upon which a plain-text character is established, an element upon which a cipher character is established and a set of juxtaposed, rotatable switching devices operatively interposed between said elements, all coordinated for operation under the control of a cipher-key transmitter; the method of enciphering which consists in continuously varying the cipher resultant of a given plain text character by externally and aperiodically controlling the displacements of said switching devices permutatively and in a stepwise manner, the step of external control involving the operation of the cipher-key transmitter according to an unintelligible, random sequence of keying characters.

- 28. In a cryptographic system employing an element upon which a plaim-text character is established, and a set of juxtaposed, rotatable switching devices operatively interposed between said elements, all coordinated for operation under the control of a plurality of electrically interacting cipher-key transmitters; the method of enciphering which consists in continuously varying the cipher resultant of a given plaim-text character, by externally and aperiodically controlling the displacements of said switching devices, permutatively and in a step-wise manner, the step of external control involving the operation of the individual cipher-key transmitters according to respective, unintelligible random sequences of keying characters.
- 29. In a cryptographic system employing an element upon which a plain-text character is established, an element upon which a cipher character is established and a set of juxtaposed, rotatable switching devices operatively interposed between said elements, all coordinated for operation under the control of a cipher-key transmitter through which is passed a perforated tape; the method of enciphering which consists in continuously varying the cipher resultant of a given plain-text character by externally and aperiodically controlling the displacements of said switching devices permutatively and in a step-wise manner, the step of external control involving the operation of the cipher-key transmitter according to an unintelligible, random sequence of keying characters, said characters being represented by perforations in said tape.
- 50. In a cryptographic system employing an element upon which a plain-text character is established, an element upon which a cipher character is established, and a set of juxtaposed, rotatable switching devices operatively interposed between said elements, all coordinated for operation under

the control of a plurality of electrically interacting cipher-key transmitters, through each of which is passed perforated tapes; the method of enciphering which consists in continuously varying the cipher resultant of a given plaintext character, by externally and aperiodically controlling the displacements of said switching devices persutatively and in a stepwise manner, the step of external control involving the operation of the individual cipher-key transmitters according to respective, unintelligible random sequences of keying characters, said characters being respectively represented by perforations in said tapes.

- 31. In a cryptographic system employing an element upon which a cipher character is established, and a set of juxtaposed, rotatable switching devices operatively interposed between said elements, all coordinated for operation under the control of a plurality of electrically interacting cipher-key transmitters, through each of which is passed a perforated tape; the method of enciphering which consists in continuously varying the cipher resultant of a given plaintext character, by externally and aperiodically controlling the displacements of said switching devices permutatively and in a stepwise manner, the step of external control involving the operation of the individual cipher-key transmitters according to respective, unintelligible random sequences of keying characters, said immunities characters being represented by perforations in said tapes for controlling said transmitters and causing interaction between characters passing simultaneously through said transmitters.
- 32. In a cryptographic system employing an element upon which a plaintext character is established, an element upon which a cipher character is established, and a set of juxtaposed, rotatable switching devices operatively interposed between said elements, all coordinated for operation under the

control of a plurality of electrically interacting cipher-key transmittersy through each of which is passed a perforated tape; the method of enciphering which consists in continuously varying the cipher resultant of a given plain-text character, by externally and aperiodically controlling the displacements of said switching devices, permutatively and in a stepwise manner, the step of external control involving the operation of the individual cipherical transmitters according to respective, unintelligible random sequences of keying characters, said characters being represented by perforations in said tapes for controlling said transmitters and causing interaction between characters passing simultaneously through said transmitters whereby the final control exercised by the respective transmitters is collective in character.

- slements and employing as a keying element a cipher-key transmitter, said transmitter using a cipher-key consisting of keying characters composed of signaling units permuted in accordance with a plural-unit code; the method of eliminating from the final cryptogram those permutations of said code which have no standard equivalents in the conventional twenty-six letter Morse code, said method consisting in causing said cipher-key transmitter to control the permutative, stepwise displacements of the ciphering elements to the exclusion of any direct interaction between the keying characters and the message characters.
- 34. In a cryptographic system comprising a set of ciphering elements and employing as keying elements a plurality of cipher-key transmitters, said transmitters using cipher keys consisting of keying characters composed of

signaling units permuted in accordance with a plural-unit code; the method of eliminating from the final cryptogram those permutations of said code which have no standard equivalents in the conventional twenty-six letter more code, said method consisting in causing said cipher-key transmitters to control collectively the permutative, stepwise displacements of the ciphering elements to the exclusion of any direct interaction between the keying characters and the message characters.

ARACHO & CLAIMS PUR CON-ANION CASE

In combination a set of character elements constituting a key board; a switch individual to each element and operable thereby; a corresponding number of translating devices operable by said elements; a wiring system interposed between said switches and said translating devices rendering available a multiplicity of electrical paths between said as tones and said devices; and means operable in response to each key operation for selecting a group of said paths, said last named means comprising a variably operable sensing mechanism.

constituting a keyboard; a switch individual to each element and operable thereby; a corresponding number of translating devices operable he said elements; a wiring system interposed between said switches and said translating devices rendering available a multiplicity of electrical paths between said switches and said devices whereby each switch may become associated with any one of a plurality of sold translating devices, said system comprising adjustably movable connectors whereby the wiring system may be given an initial setting providing one electrical path for each switch; and means operable in response to each key operation for changing such setting.

37. En The combination set forth in Claim in in which the last named means comprises a sensing mechanism operable by a perforated element.

The combination set forth in Claim in which the last named means comprises a plurality of relays corresponding in number to the number of movable connectors; and a sensing mechanism operable by an element perforated in accordance with a plural unit character code.

39. 4. In combination a set of character elements constituting a keyboard; a switch individual to each element and operable thereby; a corresponding number of translating devices operable by said elements; a wiring system interposed between said switches and said translating devices rendering available a multiplicity of electrical paths between said switches and said devices whereby each switch may become associated with any one of a plurality of said translating devices, said s. stem comprising a plurality of stationary annular commutator elements and rotatable annular commutator members interposed between each pair of fixed commutator elements, said members having a set of contacts on each face thereof, cooperating with the contacts of the adjacent stationary element, said members also having random cross connections between the contacts on the opposing faces thereof, whereby the wiring system may be given an initial setting at will; and means operable in response to each key operation for changing such setting.

. claim

- 1. In a cryptograph, a keyboard comprising character elements in operative electrical connection with corresponding signaling elements; means comprising a set of juxtaposed, rotatable commutators for varying the connections between the keyboard elements and said signaling elements; a cipher-key transmitter; and means coordinated with the transmitter to effect permutative, stepwise displacements of the commutators.
- 2. In a cryptograph, a keyboard comprising character elements in operative electrical connection with corresponding signaling elements; means comprising a set of juxtaposed, rotatable commutators for varying the connections between the keyboard elements and said signaling elements; a cipher-key transmitter mechanism; and means coordinating said mechanism with the commutators to effect permutative, stepwise displacements of the commutators.
- 3. In a cryptograph, a keyboard comprising character elements in operative electrical connection with corresponding signaling elements; means comprising a set of juxtaposed, rotatable commutators for varying the connections between the keyboard elements and said signaling elements; a cipher-key transmitter mechanism; and a set of commutator stepping mechanisms each comprising a magnet and associated ratchet and pawl, the cipher-key transmitter mechanism being operatively associated with the commutator stepping mechanisms to effect permutative, stepwise displacements of the commutators.
- 4. In a cryptograph, a keyboard comprising character elements in operative electrical connection with corresponding signaling elements; means comprising a set of juxtaposed, rotatable commutators for varying the connections between the keyboard elements and said signaling elements; a plurality of cipher-key transmitters; and means coordinating said transmitters to effect permutative, stepwise displacements of the commutators.
- 5. In a cryptograph, a keyboard comprising character elements in operative electrical connection with corresponding signaling elements; means comprising a set of juxtaposed, rotatable commutators for varying the connections between the

keyboard elements and said signaling elements; a plurality of cipher-key transmitters; a set of commutator stepping mechanisms each comprising a magnet and associated ratchet and pauly the set of commutator stepping mechanisms being controlled by the said cipher-key transmitters associated as a group coordinated collectively to effect permutative, stepping placements of the commutators.

- 6. In a cryptograph, a keyboard comprising character elements in operative electrical connection with corresponding signaling elements; seams comprising a set of justaposed, notatable consultators for varying the connections between the apposed elements and said signaling elements; a cipher-key transmitter mechanism; and means coordinating said deciranism with the commutators to effect permutative, stapping displacements of the consultators, the displacement productive accuming being controlled by a regin element ship, in distance to ambain appendent of the cryptograph.
- 7. In a crypto righ, a keyboard comprising character elements in operative electrical connection with corresponding signaling elements; means comprising a not of guarantees, notatable computators for varying the commentation but can the appears elements are said signaling elements; a granulation of eighter-key transmitters; and acond coordinating the transmitters to effect permittive, stepping displacements of the commutators, the transmitters being controlled by departs her in elements which are a termed to and independent of the cryptograph.
- 3. In a cryptograph, a keypoard comprising character elements in operative thetrical connection with corresponding signaling elements; means comprising a set of grataposed, rotatable commutators for varying the connections between the acyboard elements and said signaling elements; a cipher-key transmitter mechanism; and means coordinating said mechanism little the commutators to exfect permutative, steplise displacements of the commutators, the cipher-key transmitter meananism being controlled by a neglig element which is external to and independent of the cryptograph,

and which (consists of) a perforated tape bearing perforations permuted in accordance with a plural-unit code to represent characters in that code.

- 9. In a cryptograph, a keyboard comprising character elements in operative electrical connection with corresponding signaling elements; means comprising a set of juxtaposed, rotatable commutators for varying the connections between the keyboard elements and said signaling elements; a plurality of cipher-key transmitters; and means coordinating the transmitters to effect permutative, stepwise displacements of the commutators, the said transmitters being controlled by separate keying elements which are enternal to and independent of the cryptograph, and which (consist of) perforated tapes bearing perforations permuted in accordance with a plural-unit code to represent characters in that code.
- operative electrical connection with corresponding all nating elements; means comprising a set of justaposes, rotatable consultators for varying the connections between the keyboard elements and said signaling elements; a plurality of eigher-key transmitters; and means coordinating the transmitters to effect permutative, steprise displacements of the commutators, the said transmitters being controlled by individual keying elements which are element to and independent of the cryptograph, and which (consist of) perforated types bearing perforations permuted in accordance with a plural-unit code to represent characters in that code, the numbers of such characters in the respective types being prime to one another.
- 11. In a cryptograph of the character described, the combination of a set of justaposed, rotatable commutators; a set of commutator stepping mechanism; and a plural-unit-code cipher-key transmitter.
- 12. In a crystograph of the engracter described, the combination of a set of justaposed, rotatable commutators; a set of commutator stepping acchanization; and a plural-unit-code cipher-key transmitter, the latter controlling the commutator stepping acchanizate to effect permutative, stepping dechanizate of the commutators.

- 13. In a cryptograph of the character described, the combination of a set of juxtaposed, rotatable commutators; a set of commutator stepping mechanisms; and a plurality of plural-unit-code cipher-key transmitters.
- 14. In a cryptograph of the character described, the combination of a set of juxtaposed, rotatable commutators; a set of commutator stepping mechanisms; and a plurality of plural-unit-code cipher-key transmitters electrically associated for collectively controlling the commutator stepping mechanisms to effect permutative, stepping displacements of the commutators.
- 15. In a cryptograph of the character described, the combination of a set of juxtaposed, rotatable communicators for varying the connections between (a set of keyboard elements and a set of signaling) elements; a set of commutator stepping mechanisms for displacing the respective commutators in a stepwise manner; and a plural-unit-code cipher-key transmitter for controlling the commutator stepping mechanisms to effect the stepwise displacements of the commutators in a permutative manner.
- 17. A mechanism of the character described, comprising a set of elements constituting a keyboard, and a set of elements constituting a signaling bank; a set of juxtaposed, rotatable switching devices for varying the connections between the two sets of elements; nears for effecting stepwise displacements of the switching devices in an aperiodic manner.

 18. See Below.
- A mechanism of the character described, comprising a set of elements constituting a keyboard and a set of elements constituting a signaling bank; a set of juxtaposed, rotatable switching devices for varying the connections between the two sets of elements; means for effecting stepwise displacements (short for the step of the ste
- 18. Same as 17 plus. " said means being controlled by an elament which is external to the mechanism itself"

of the switching devices in an aperiodic manner, the stepwise displacements of the set of switching devices being permutative in character.

- 20. A mechanism of the character described, comprising a set of elements constituting a keyboard and a set of elements constituting a signaling bank; a set of juxtaposed, rotatable switching devices for varying the connections between the two sets of elements; means for effecting stepwise displacements of the switching devices in an aperiodic manner, the stepwise displacements of the set of switching devices being permutative in character, the permutations of elements of the set of switching devices being permutative in character, the permutations of elements of the set of switching devices being permutative in character, the permutations of elements of the set of switching devices being permutative in character, the permutations of elements of the set of switching devices being permutative in character, the permutations of elements of the set of switching devices being permutative in character, the permutations of the set of switching devices being permutative in character, the permutations of the set of switching devices being permutative in character.
- 21. I depended of the character described, comprising a set of elements constituting a signaling bank; a set of justago el, rotatoble switching devices for varying the connections between the two sets of recents; means for effecting stepside displacements of the situation devices in an aperiodic names, the stepside displacements of the set of switching devices being permutative in character; the permutations of the set of switching devices being permutative in character; the permutations of stepside displacements being devices being permutative in character; the permutations of stepside displacements being determined by an external day, said may compatible a nonrepositing sequence of ciphering characters arranged in some on, saidteld in the order.
- 2. A meanwhile of the character described, comprising a set of elements constituting a mayor reason a set of elements constituting a signaling bank; where of justs of a set of materials suitating devices for varying the connections between the two date of all ments; means for a feeting stepsise displacements of the clitering devices in an openiodic manner, the stepsise displacements of the clitering devices in an openiodic manner, the stepsise displacements of the ret of a litching devices being permutative in character; the permutations of stepsise displacements being determined by somewhereastery, said may comprising a manufacturing sequence of ciphering characters arranged in an appropriate displacements, the said ciphering characters being employed successively to encipher successive characters of the message.

- elements constituting a keyboard and a set of elements constituting a signaling bank; a set of juxtaposed, rotatable switching devices for varying the connections between the two sets of elements; means for effecting stepwise displacements of the switching devices in an aperiodic manner, the stepwise displacements of the set of switching devices being permutative in character; the permutations of stepwise displacements being determined by a plurality of independent but interacting external keys.
- A mechanism of the character described, comprising a set of elements constituting a keyboard and a set of elements constituting a signaling bank; a set of juxtaposed, rotatable switching devices for varying the connections between the two sets of elements; means for effecting stepwise displacements of the switching devices in an aperiodic manner, the stepwise displacements of the set of switching devices being permutative in character; the permutations of stepwise displacements being determined by a plurality of independent but interacting external keys, each of said keys comprising a nonrepeating sequence of ciphering characters arranged in random, unintelligible order.
- 25. A mechanism of the character described, comprising a set of elements constituting a keyboard and a set of elements constituting a signaling bank; a set of juxtaposed, rotatable switching devices for varying the connections between the two sets of elements; means for effecting stepwise displacements of the switching devices in an aperiodic manner, the etopwise displacements of the set of switching devices being permutative in character; the permutations of stepwise displacements being determined by a plurality of independent but interacting external keys, each of said keys comprising a nonrepeating sequence of ciphering characters arranged in random, unintelligible order, and the interaction of the said keys producing a resultant single key consisting of an unintelligible sequence of characters which serves so the cipher key to encipher the successive characters of the message.

- 26. In a cryptographic system employing an element upon which a plain-text character is established and an element upon which a cipher character is established, and including a set of juxtaposed, rotatable switching devices operatively interposed between said elements; the method of enciphering which consists in continuously varying the cipher resultant of a given plain-text character by externally controlling the aperiodic, stepwise, permutative displacements of said (set of switching devices.
- 27. In a cryptographic syste: employing an element upon which a plain-text character is established, an element upon which a cipher character is established and a set of juxtaposed, rotatable switching devices operatively interposed between said elements, all coordinated for operation under the control of a cipher-key transmitter; the method of enciphering which consists in continuously varying the cipher resultant of a given plaintext character by externally controlling the aperiodic, stepwise, permutative displacements of soid switching devices, the step of external control involving the operation of the cipher-key transmitter according to an unintelligible, random sequence of keying characters.
- 28. In a cryptographic system employing an element upon which a plaintext character is established, and a set of juxtaposed, rotatable switching devices operatively interposed between said elements, all coordinated for operation under the control of a plurality of electrically interacting cipher-key transmitters; the method of enciphering which consists in continuously varying the cipher resultant of a given plain-text character, by externally controlling the caperiodic, stepwise, permutative displacements of said switching devices, the step of external control involving the operation of the individual cipher-key transmitters according to respective, unintelligible random sequences of keying characters.
 - 25. In a cryptographic system employing an element upon which a plaintext character is established, an element upon which a cipher character is established and a set of juntabosed, rotatable switching devices operatively

to the exclusion of any direct interaction between the keying characters and the message characters.

interposed between said elements, all coordinated for operation under the control of a cipher-key transmitter; the method of enciphering which consists in continuously varying the cipher resultant of a given plain-text character by externally controlling the Speriodic, stepwise, permutative displacements of said switching devices, the step of external control involvin, the operation of the cipher-hey transmitter according to an unintelligible, random be monce f keying characters, said characters being represented by periorations in a tape for controlling said transmitter.

- 30. In a cryptographic system encoying an element upon which a stain-tent connector is entablished, an element upon which a cipher character is established, and a set of justage con, notatable switching devices operatively inter once between sail elements, the coordinated for operation under the control of a plurality of electrically interacting cipher-way transmitters; the actual of encloseing which consists in continuously varying the cipher results at of a liver plain-tens of anotator, as externally controlling the new order of a permittive element of asset of sail switching devices, the standard control involves the control of sail switching devices, the standard control involves the operation of the individual sigher-key transfer according to respective, unintelligible reason be understood of according in tapeager controlling sail transmitters.
- that character is a trabilished, we element upon which a plaintent character is a trabilished, we element upon which a cipher character is a trabilished, we element upon which a cipher character is a trabilished, and a test of justa open, rotatable critecing devices operatively interpodes between radi clearnes, all coordinated for operation under the control of a plurality of electrically interacting dipher-key transmitters, the method of employed the condicts in continuously varying the cipher resultant of a given plain-test character, by enterpolity no crobing the formation, required, permutative displacements of said suitables devices, the step of external control involving the operation of the individual cipher-key transmitters according to respective, unintelligible random sequences of keying characters, and characters being represented by perforations in tapes for controlling said transmitters and cousing interaction between characters passing ciphton-couchy through said transmitters.

- 32. In a cryptographic system employing an element upon which a plaintext character is established, an element upon which a cipher character is established, and a set of justaposed, rotatable switching devices operatively interposed between said elements, all coordinated for operation under the property of a plurality of electrically interacting cipher-key transmitters, the method of enciphering which consists in continuously varying the cipher resultant of a given plain-text character, by externally controlling the aperiodic, stopwise, permutative uisplacements of said switching devices, the step of external control involving the operation of the individual cipher-key transmitters according to respective, unintelligible random sequences of keying characters, said characters being represented by perforations in tapes for controlling said transmitters and causing interaction between characters passing simultaneously through said transmitters is collective in character.
- and employing as a representation of health and composed of algorithm units a cipher-key consisting of health and composed of algorithm units permuted in accordance with a plural-unit doce; the method of climinating from the final cryptogram those permutations of said code which have no attendance equivalents in the conventional twenty-six letter mores code, said method consisting in causing said cipher-key transmitter to control the permutative, attending displacements of the ciphering elements to the exclusion of any direct interaction between the acying characters are the message characters.
- 37. In a crypto, remain system comprising a not of ciphering elements and employing to regime elements a plurality of element-key transmitters, said transmitters with eigher keys consisting of teging ensuredees composed of eighth, units permitted in recordance with a plural-unit code; the method of eliminating from the righth results are those normalizations of make code unital eryono discordance dividents in the conventions; then the code unital eryono discordance dividents in the conventions; then the control end of the convention to control collection to the interval of the character to control collection, the regime of the character control collection, the permittive, the related in the concents of the character control.