

1. In a cryptograph, a keyboard comprising a set of character elements; a set of signaling devices; means comprising a set of substitution commutators through which operative electrical connections between the character elements and the signaling devices are established; a set of displacement mechanisms associated with the set of substitution commutators and arranged to effect angular displacements of the substitution commutators; and means including a set of control commutators electrically controlling the displacement mechanisms.

2. In a cryptograph, a keyboard comprising a set of character elements; a set of signaling devices; means for establishing operative electrical connections between the respective character elements and the corresponding signaling devices, said means including a set of double-ring-contact, angularly displaceable commutators through which the connections between the character elements and the signaling devices are established; a set of displacement mechanisms associated with the set of commutators and arranged to effect angular displacements of the commutators; and associated devices of such character and so arranged as to cause the electrical currents concerned in effecting the cryptographic substitution to pass through the commutators along a path which includes the contacts belonging to one of the two rings of the double-ring-contact commutators, while the electrical currents concerned in controlling the angular displacements of the commutators pass through the commutators along a path which includes the contacts belonging to the other of the two rings of contacts of the double-ring-contact commutators.

3. In a cryptograph, a keyboard comprising a set of character elements in operative electrical connection with a set of signaling devices; means for establishing and varying the connections between the character elements and the signaling devices; said means comprising a set of single-ring-contact, angularly displaceable commutators through which the electrical connections between the character elements and the signaling devices are established; a set of displacement mechanisms associated with the set of commutators and arranged to control the angular displacements of the commutators; and

associated devices of such character and so arranged as to cause the contacts of the commutators to function as elements in electrical circuits concerned alternately in substitution and control.

4. In a cryptograph, a first set of commutators for performing cryptographic substitution functions and a second set of commutators for performing control functions, all commutators being interchangeable.

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6. In a cryptograph, a first set of commutators for performing cryptographic substitution functions and a second set of commutators for performing control functions, homologous commutators being interchangeable.

7. In a cryptograph, a first set of commutators for performing cryptographic substitution and a second set of commutators for controlling the first set.

8. In a cryptograph, the means and the associated electrical circuits for causing a first set of commutators to be controlled electrically by a second set of commutators.

9. In a cryptograph, the means and the associated electrical circuits for causing a first set of commutators to perform cryptographic substitution functions, and a second set of commutators to perform control functions.

10. In a cryptograph, the means and the associated electrical circuits for causing a first set of commutators to be controlled electrically by a second set of commutators, all commutators being interchangeable.

11. In a cryptograph, the means and the associated electrical circuits for causing a first set of commutators to be controlled electrically by a second set of commutators, homologous commutators being interchangeable.

12. In a cryptograph, the means and the associated electrical circuits for controlling the angular displacements of the individual commutators of a set of ciphering commutators, said means and circuits including a set of control commutators.

13. In a cryptograph, the means and the associated electrical circuits for controlling the angular displacement of the individual commutators of a set of ciphering commutators, said means and circuits including a set of control commutators through which an electric current is passed to control the angular displacements of the ciphering commutators.

14. In a cryptograph, the means and the associated electrical circuits for causing the same set of commutators to perform both cryptographic substitution and control functions,

15. In a cryptograph, the means and the associated electrical circuits for causing the same set of commutators to perform both cryptographic substitution and control functions, all commutators being interchangeable.

16. In a cryptograph, the means and the associated electrical circuits for causing the same set of commutators to perform both cryptographic substitution and control functions, homologous commutators being interchangeable.

17. In a cryptograph, the means and the associated electrical circuits for causing the same set of commutators to perform both cryptographic substitution and control functions, said means including separate channels for the passage of electrical currents concerned with the respective functions, these channels being constituted of separate rings of contacts on the commutators.

18. In a cryptograph, the means and the associated electrical circuits for causing the same set of commutators to perform both cryptographic substitution and control functions, said means including separate channels for the passage of electrical currents concerned with the respective functions, these channels being constituted of separate

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rings of contacts on the commutators, all commutators being interchangeable.

19. In a cryptograph, the means and the associated electrical circuits for causing the same set of commutators to perform both cryptographic substitution and control functions, said means including separate channels for the passage of electrical currents concerned with the respective functions, these channels being constituted of separate rings of contacts on the commutators, homologous commutators being interchangeable.

20. In a cryptograph, the means and the associated electrical circuits for causing a set of single-ring-contact switching commutators to perform both cryptographic substitution and control functions, said means including devices for alternating the cryptographic substitutive phases with the control phases of operation.

21. In a cryptograph, a plurality of self-controlled ciphering commutators arranged in cascade.

22. In a cryptograph, a plurality of self-controlled ciphering commutators arranged in cascade, the angular displacements of which are controlled by the commutators themselves.

23. In a cryptograph, a plurality of self-controlled ciphering commutators arranged in cascade, the angular displacements of which are controlled by an electrical current passed through the commutators themselves.

24. In a cryptograph, a plurality of self-controlled ciphering commutators arranged in cascade, the commutators being interchangeable.

25. In a cryptograph, a plurality of self-controlled ciphering commutators arranged in cascade, homologous commutators being interchangeable.

26. In a cryptograph, the combination of a set of self-controlled, single-ring-contact commutators, with a gong switch and associated apparatus permitting the same commutators to function alternately as ciphering commutators and as control commutators.

27. In a cryptograph, the means and the electrical circuits whereby

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the displacements of the individual commutators of a set of commutators in cascade can be controlled by electrical currents passed through the commutators themselves.

28. In a cryptograph, the means and the electrical circuits for self-controlling a set of commutators.

29. In a cryptograph, the means and the electrical circuits whereby the displacements of the individual commutators of a set of commutators in cascade can be controlled by electrical currents passed through the commutators themselves in cascade.

30. A switching commutator bearing two or more concentric rings of contacts on the obverse face and a corresponding number of concentric rings of contacts on the reverse face, the contacts of the rings on the obverse face being connected, by means of insulated conductors passing through the commutator, to the contacts of the homologous rings on the reverse face.

31. A reversing commutator bearing two or more concentric rings of even numbers of contacts on one of its faces, the individual contacts belonging to each ring being connected to one another in pairs by means of insulated conductors.

32. In a cryptograph, a set of juxtaposed, double-ring-contact switching commutators, one of the two rings of contacts being contacts for cryptographic substitution functions, the other ring of contacts being contacts for control functions.

33. In a cryptographic system affording a plurality of cipher alphabets for substitution, means for electrically selecting cipher alphabets and aperiodically controlling the sequence in which the cipher alphabets are selected, said means including devices for passing an electrical current through a series of juxtaposed, rotatable switching commutators arranged in cascade, so that the alphabet selected in any specific case is determined by the permutative and horizontal alignment of the entire set of commutators; and means for continuously, angularly displacing the individual commutators.

34. In a cryptographic system affording a plurality of cipher alphabets for substitution, means for electrically selecting cipher alphabets and aperiodically controlling the sequence in which the cipher alphabets are selected, said means including devices for passing an electrical current through a series of juxtaposed, rotatable switching commutators arranged in cascade, so that the alphabet selected in any specific case is determined by the permutative and horizontal alignment of the entire set of commutators; and means for continuously, angularly displacing the individual commutators aperiodically.

35. In a cryptograph, a keyboard comprising character elements in operative electrical connection with corresponding signaling devices, means for varying the connections between the character elements and the signaling devices, said means including a set of juxtaposed, rotatable, single-ring-contact switching commutators mounted upon a common shaft, the commutators being individually angularly displaced by respective, individually controlled stepping mechanisms, the stepping mechanisms being electrically controlled by electrical currents passed through the commutators, the same commutators being alternately employed in effecting the substitution and the control functions substantially as described.

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