forth, of a source of alternating or intermittent electric currents, a soft iron core, two opposing coils included in the circuit of said source and surrounding said core, a shunt circuit around one of said coils, and one or more translating devices included in said shunt circuit. 11th. The combination, substantially as hereinbefore set forth, of a source of electricity, a soft iron core opposing coils surrounding said core and included in the circuit of said source of electricity, conductors leading from the respective terminals of one of said coils, translating devices, and means for including the same in multiple arc between said conductors. 12th. The combination, substantially as hereinbefore set forth, of a source of alternating electric currents, a main line, means for creating a variable counter electromotive force in said main line, branch or shunt circuits of said main line, translating devices included in such branch or shunt circuits, and means for simultaneously modifying the resistance of the branch or shunt circuits, and means for simultaneously modifying the resistance of the branch or shunt, and the resistance of the main line at a point between the terminals of the branch or shunt in direct proportion.

No. 27,970. System of Electrical Conversion. *(Système d'inversion électrique.)*

The Westinghouse Electric Company, Pittsburgh, Penn., (assignee of William Stanley, jr., Great Barrington, Mass.), U. S., 10th November, 1887; 5 years.

Claim—1st. The hereinbefore described method of electrical distribution, which consists in generating currents of high potential, transmitting the same to remote points, there converting them into secondary currents of lower potential, transmitting the converted currents to points in the more immediate vicinity of the points of consumption, and there reconverting them into tertiary currents of still lower potential, and transmitting the last named currents to the points of consumption. 2nd. The hereinbefore described method of electrical distribution and supply, which consists in generating currents of high potential at a point remote from the point of consumption, and reducing the electromotive force step by step during its transmission to the point of consumption. 3rd. The hereinbefore described method of electrical distribution, which consists in transferring electrical energy from a high potential supply circuit to a lower potential consumption circuit, through an interposed electrically insulated circuit.

No. 27,971. System of Electrical Distribution. *(Mode de distribution électrique.)*

The Westinghouse Electric Company, Pittsburgh, (assignee of Oliver B. Shallenberger, Rochester), Penn., U.S., 10th November, 1887; 5 years.

Claim.—1st. The combination, substantially as described, of a source of electricity, two main lines, converters having their secondary coils connected with different points along the length of said main lines, conductors connecting the source of electricity with the primary coils of the respective converters, and one or more converters having their primary coils respectively included in the last-named conductors, and adjustable resistances included in the secondary coils, substantially as described. 2nd. The combination, substantially as described, with two or more alternate current generators, of a source of electrical current supplying the field magnet coils of the same, conductors with which said generators are connected in multiple arc, a system of feeding, conductors connected therewith, translating devices and a main line with which said translating devices are connected, and converters located along the main line having their secondary coils connected therewith in multiple arc, and their primary coils connected with the feeding conductors aforesaid.

No. 27,972. Method of and Apparatus for Connecting Alternate Current Electric Generators. *(Mode de raccordement des générateurs d'électricité à courants alternatifs et appareil pour cet objet.)*

The Westinghouse Electric Company, Pittsburgh, (assignee of Oliver B. Shallenberger, Rochester, Penn., U.S., 10th November, 1887; 5 years.

Claim.—1st. The hereinbefore described method of bringing an alternate current electric generator into multiple-arc with another similar generator when both are in action, which consists in first connecting it through a circuit of high resistance, indicating the current, traversing this circuit and thereby noting the relative phases of the two generators, and at a movement when the phases are synchronous connecting the generator independently of the resistance. 2nd. The hereinbefore described method of connecting alternate current electric generators with a work-circuit when in action, which consists in first connecting them with each other through a resistance circuit, indicating the resultant current traversing the circuit, and at a moment of minimum current through said resistance circuit, shunting or cutting out the resistance. 3rd. The combination, with an alternate-current generator and a circuit supplied therefrom, of a second alternate-current generator, a resistance circuit through which the second generator may be connected in multiple arc with said circuit, an indicating device operated by the currents traversing the resistance-circuit, and means for cutting on the resistance and indicating device. 4th. The combination of one or more alternate-current electric generators, a circuit for the same, translating devices fed from said circuit, a second generator, a circuit through which said generators may be connected in multiple arc with the translating divices, an indicator in said circuit operated by the resultant current from all the machines, and means for connecting the second generator independently of the indicating device. 5th. The combination of an alternate-current electric generator, a supply-circuit fed therefrom, a second alternate-current generator, means for connecting the same with said circuit in multiple-arc with the first, an electric converter, means for connecting the primary coil of the converter in the circuit of the second generator, and an indicating device included in the circuit of the secondary coil of the converter. 6th. The combination, substantially as described, of an alternate-current electric generator, a supply circuit, a second generator connections, whereby the generators may be connected with the circuit either independently or in multiple-arc with each other, an indicating device for each generator, and means for causing at will the current from either generator, or the resultant current from both generators to operate the corresponding indicating device. 7th. The combination, with a system of electrical distribution, of two alternate-current electric generators, one connected in circuit with said system circuit-connections, whereby the second may be placed in parallel circuit therewith, an electrical converter having one terminal of its primary coils connected in circuit with said distributing system, a switch for placing the other terminal in connection with the other generator, and an incandescent electric lamp or other indicating device included in the circuit of the secondary coil of said converter. 8th. In an apparatus for connecting alternate-current generators in multiple-arc, an electric converter having one terminal of its primary coil adapted to be connected with either generator, a switch for placing the other terminal in connection with the other generator, and an indicating device included in the circuit of the secondary coil of the converter, substantially as described. 9th. The combination of two alternate-current electric generators, an electric converter, means for placing one terminal of the primary coil of the same in connection with each generator, a switch for placing the other terminal of the primary coil in connection with the corresponding pole of the other generator, an electric circuit with which the circuit of the first-named generator is complete, means for completing the connections of the other generator with said circuit in multiple-arc with the first-named generator, and an indicating device included in the circuit with the secondary coil of said converter. 10th. The combination, substantially as hereinbefore set forth, with an inductive electric resistance, a circuit including the same, and an indicating device operated by the current traversing such resistance, of two alternate-current electric generators, switches for placing said generators in multiple-arc connection through said resistance, and means for placing the generators in multiple-arc connection independently of said resistance. 11th. The combination, with two alternate current electric generators of main circuit, means for connecting either generator with said circuit at will in full circuit, an indicating device consisting of a converter adapted to have its primary coil connected in circuit with either generator at will, and an incandescent electric lamp included in the secondary circuit of the converter. 12th. A safety device for electric circuits consisting of two fusible strips, a binding plate with which they are both connected, two insulated plates with which the remaining ends of said strips are respectively connected, and a second binding-plate adapted to be placed in electrical connection with any of the other plates. 13th. The combination, with an alternate-current electric generator, of a circuit supplied therefrom, a second alternate current electric generator, a resistance circuit through which the second generator may be connected in multiple-arc with said circuit, means for cutting out said resistance circuit, and a safety plug applied to the system of circuits consisting of a fusible strip and a short circuiting device therefor, substantially as described.

No. 27,973. System of Electrical Distribution and Conversion. *(Mode de distribution et d'inversion électriques.)*

The Westinghouse Electric Company, Pittsburgh, (assignee of Oliver B. Shallenberger, Rochester, Penn., U. S., 10th November, 1887; 5 years.

Claim.—1st. The combination, substantially as hereinbefore set forth, of a main line, a converter having its primary coil included in the main line, conductors leading from different points in the length of the secondary coil, translating devices or groups of the same, and a circuit controller for including said translating devices or groups of the same between different conductors leading from the secondary coil at will. 2nd. The combination, with the primary coil, of a converter of a secondary coil, conductors leading from the different points in the length of the latter, switch-points to which said conductors lead, switches applied to said points, and translating devices connected in multiple arc between one of said conductors and one of said switches. 3rd. The combination, in a system of electrical distribution, of a source of alternating currents, a converter having its primary coil supplied from said source, a second converter supplied from the secondary circuit in the length of the secondary coil of the second converter translating devices, and means for including any or all of said devices between the different conductors, substantially as described. 4th. The combination, in a system of electrical distribution, of a source of alternating currents, a converter supplied from said source, distributing conductors supplied from the secondary of said converter, translating devices supplied from said distributing conductors, a second converter having its primary coil also supplied from said distributing conductors, other translating devices or groups of the same, and means substantially such as described, for including the last-named translating devices in circuit with more or less of the secondary coil of the second converter. 5th. The combination, with a source of electricity, of a converter having its primary coil in circuit therewith, contact-points connected with different points in the length of said secondary coil, a conductor permanently connected with one of said points, a secondary conductor adapted to be placed in connection with any of said points, a third conductor leading from the terminal of the secondary coil, and translating devices, certain of which are connected in circuit between the last and first-named conductors, and other translating devices included between said last-named and the remaining conductor.

No. 27,974. System of Electrical Distribution and Conversion. *(Mode de distribution et d inversion électriques.)*

The Westinghouse Electric Company, Pittsburgh, (assignee of Oliver B. Shallenberger, Rochester), Penn., U.S., 10th November, 1887; 5 years.