

vided with a knob 18, and supported in the slot 17, and having embossed on its bottom end a cross, in combination with the supplemental block 19, designed to fill the remainder of the slot 17, as and for the purpose specified. 10th. The block 16, provided with a knob 18, and supported in the slot 17, and having embossed on its bottom end a cross, in combination with the supplemental block 19, provided with an outside flange 20, and spindle 21, having a cross bar 22 at its inner end arranged, as and for the purpose specified. 11th. The hour and minute registering wheels K and L, having embossed on them the hours and minutes at equal distances apart, and intermittently rotated and held in position as specified, in combination with the platen 4, and means whereby it is brought against the embossed numbers on the wheels, as and for the purpose specified. 12th. The hour and minute registering wheels K and L, having embossed on them the hours and minutes at equal distances apart, and intermittently rotated and held in position as specified, in combination with the platen 4, push rod 6, having a push button 8, pivotally connected by the link 11, to the rod 12, forming part of the platen 4, and by the links 9, to the brackets 10, on the bottom plate of the machine, as and for the purpose specified. 13th. The combination with the minute and hour hand, registering wheels caused to rotate intermittently as specified, and having embossed on their peripheries the minutes and hours as specified, and the month and day registering rims having embossed on their peripheries the months and days and held in position as specified, of the slot Z, and platen 4, designed to be brought against the characters on the registering wheels, as and for the purpose specified. 14th. The combination with the minute and hour hand registering wheels caused to rotate intermittently as specified, and having embossed on their peripheries the minutes and hours as specified, and the month and day registering rims having embossed on their peripheries the months and days and held in position as specified, of the slot Z, and platen 4, operated as specified, and ink ribbon 13, situated between the platen and the registering wheels and rims, as and for the purpose specified. 15th. The combination with the minute and hour hand registering wheels caused to rotate intermittently as specified, and having embossed on their peripheries the minutes and hours as specified, and the month and day registering rims having embossed on their peripheries the months and days and held in position as specified, of the slot Z, and platen 4, operated as specified, and ink ribbon 13, situated between the platen and the registering wheels and rims, as and for the purpose specified. 16th. The combination with the minute and hour hand registering wheels caused to rotate intermittently as specified, and having embossed on their peripheries the minutes and hours as specified, and the month and day registering rims having embossed on their peripheries the months and days and held in position as specified, of the slot Z, and platen 4, operated as specified, and ink ribbon 13, situated between the platen and the registering wheels and rims, as and for the purpose specified. 17th. The combination with the push rod 6, held in the links 9, pivoted in the brackets 10, and the spindle 10<sup>1</sup>, having the arm 32 secured on it, which is designed to engage with the teeth of the registering disc 23, which is held in position by the dog 29, as and for the purpose specified. 18th. The combination with the push rod 6, held in the links 9, pivoted in the brackets 10, and the spindle 10<sup>1</sup>, having the arm 32 secured on it, and the spiral spring wound upon the spindle and designed to press the arm downwardly, of the registering disc 23, which is turned by the upward movement of the arm 32, and held in position by the spring dog 29, as and for the purpose specified. 19th. The combination with the push rod 6, and arm 32, attached to the spindle 10<sup>1</sup>, of the registering disc 23, which is turned by the upward movement of the arm 32, and which is connected and imparts movement to the discs 24 and 25, as and for the purpose specified.

#### No. 42,130. Gear Cutter.

(*Mécanisme pour tailler les engrenages.*)

Charles Henry Trask, Lynn, Massachusetts, U.S.A., 1st March, 1893; 6 years.

*Claim.*—1st. As an improved article of manufacture a gear having at the end of each tooth, pocket or recess a seating rib or bead, as and for the purposes described. 2nd. A gear cutter for forming ribs or beads in the pockets or recesses of a gear having the bead or seat forming recess in each of its cutting teeth, as and for the purposes described.

#### No. 42,131. Lightning Arrester. (*Paratonnerre.*)

William Richard Garton and John C. Daniels, both of Keokuk, Iowa, U.S.A., 1st March, 1893; 6 years.

*Claim.*—1st. In a lightning arrester for electric lines, a combination of a pair of serrated plates arranged parallel with each other, but electrically insulated from each other, a solenoid arranged above the upper plate, and armature inserted in the solenoid and connected with one terminal of the solenoid, a carbon rod carried by the armature and arranged to connect with the upper plate and the ground and line connections, substantially as specified. 2nd. In a lightning arrester for electric lines, the combination of the serrated plates B, C, the air tight chamber H, the solenoid D, armature E, provided with the guide rod F, the carbon rod G, carried by the armature, and the electrical connections, substantially as specified. 3rd. In a lightning arrester an air-tight chamber enclosing the discharging points or surfaces, substantially as specified.

#### No. 52,132. System of Electrical Distribution.

(*Système de distribution électrique.*)

Elihu Thomson, of Swampscott, Massachusetts, U.S.A., 1st March, 1893; 6 years.

*Claim.*—1st. The herein described method of regulating a continuous current transformer, consisting in subjecting a separate armature conductor in circuit with a main winding of the transformer to the action of an auxiliary magnetic field acting only on said separate conductor and varying the strength of said auxiliary field. 2nd. The herein described method of regulating a continuous current transformer, consisting in acting upon both armature conductors by a substantially constant field or fields, and varying the action of a separate field, acting only upon a separate armature conductor or section of conductor in circuit with one of the main conductors. 3rd. The herein described method of compounding or regulating a transformer for changes of load, consisting in changing the relative intensities of the magnetic field acting upon the main windings of the transformer, and a field acting upon an extension of the winding of either or both of them, thereby producing an effect equivalent to changing the relative lengths of the windings. 4th. The herein described method of regulating a transformer so as to deliver constant potential at the work, consisting in subjecting a coil or conductor in circuit with one of the transformer windings, but outside of the magnetic field or fields therefor, to the action of an added or auxiliary field and regulating the action of such field. 5th. The herein described method of producing a change in the relative effectiveness of two circuits or coils inductively related in a transformer, and connected, respectively, to main and local wires, consisting in varying the relative strengths of a magnetic field or fields acting upon both coils, and a magnetic field or fields acting upon a coil or coils in circuit with or forming an extension of the circuit of either or both of the first named coils. 6th. In a transformer, the combination, with two armatures or sections of armatures A, A<sup>1</sup>, of two armature windings, one wound upon the section A only, the other wound upon both sections A, A<sup>1</sup>, and a variable field magnet acting on the section A<sup>1</sup>. 7th. The combination, substantially as described, of two mechanically connected armature cores or sections of cores, a field magnet for each, an armature circuit including wires or conductors upon both cores, a collector therefor, a second armature circuit including wires or conductors upon one of said cores or carriers, a collector therefor, and a magnetizing or demagnetizing coil carrying varying currents and applied to the field magnet which acts upon one of the two armature circuits only. 8th. The combination, substantially as described, of two armatures revolving together, one having two armature windings inductively related, the other having an armature winding connected into circuit with a winding on the first, and a variable field magnet on the armature having the one winding. 9th. In a transformer, the combination, substantially as described, of main and local armature circuits, a field magnet common to both and maintained by a shunt circuit current, an armature conductor forming an extension of one of said armature circuits, and an auxiliary field magnet coil in a direct circuit and acting only upon said extension. 10th. The combination, in a transformer, of armature circuits connected, respectively, to the main and local circuits, and both in a substantially constant magnetic field, an extension of one of such armature circuits, a variable field magnet pole acting only upon said extension during revolution of the machine, and a field magnet coil for the latter field magnet placed in one of said armature circuits. 11th. In a transformer, the combination, substantially as described, of means for producing a constant or substantially constant field, and two transformer circuits one wholly and the other partially located in said field, as and for the purpose described. 12th. In a transformer, the combination, with the main field pole piece and armature or armatures, of an auxiliary or added section of armature core or carrier bearing a portion of the circuit which includes a conductor in the field of induction for both circuits of the transformer, and a separate field magnet pole piece for such added section. 13th. In a transformer, the combination, with the main field magnet and armature, of an auxiliary or added section of armature core or carrier carrying a part of one transformer circuit, a field magnet pole piece for such added section, and a coil for such added field magnets carrying current varying with the load. 14th. The combination, substantially as described, of a conductor wound upon both of two armature cores or sections of core, a collector therefor, a collector therefor, and means for revolving both cores together, a field magnet acting upon both conductors, and a separate field magnet acting upon one of them. 15th. The combination, with two revolving armature conductors mounted upon connected revolving carriers or supports and connected to separate circuits, of a field magnet acting on a portion of one of said conductors, and a field magnet producing a field in which both of said conductors revolve. 16th. The combination of two sets of armature conductors connected to separate circuits, a field magnet of comparatively constant effect in whose field both of said sets of conductors revolve, an added conductor or extension of conductor connected to one of the first to assist or oppose the electro-motive force of the same, and a separate variable field magnet acting during revolution of the machine only upon such added conductor, as and for the purpose described. 17th. The combination of two armature circuits and corresponding collec-