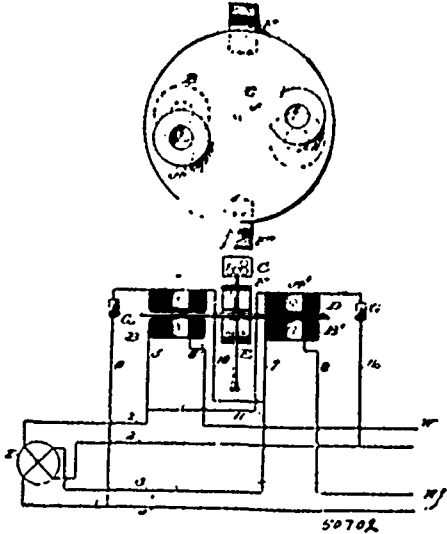


ductor mechanically connected therewith, and magnets between the poles of which said damping conductor moves. 10th. In an electric indicating meter, the combination of a moving scale and a damping device mechanically connected therewith to oppose the oscillation of the scale.

No. 50,702. Watt Meter for Multiphase Alternating Electric Currents. (*Mètre pour courant électrique alternatif à multiphase.*)

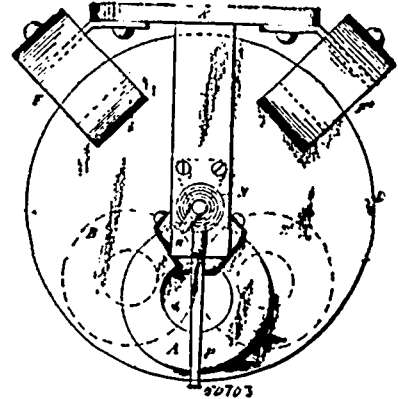


Oliver B. Shallenberger, Rochester, Pennsylvania, U.S.A., 2nd December, 1895; 6 years.

Claim.—1st. In an electric meter, an actuating device responding to the currents transmitted over two or more circuits, consisting of an armature and two independently operating sets of actuating coils, each set comprising a series coil connected in one circuit, and a shunt coil connected across another circuit. 2nd. The combination with the circuits of a multiphase system of distribution, of an electric meter, the actuating portion of which includes an armature and separate sets of independently operating actuating coils, each set comprising a coil depending for its actuating effects upon the current transmitted over one branch of the circuit independently of that transmitted over the other branches. 3rd. In an alternating current electric meter for measuring energy transmitted over two or more circuits, the combination of a counting or registering device, and an actuating device therefor consisting of an armature and two or more independent sets of actuating coils, each set dependent for its operation upon currents differing in phase, and comprising a coil connected in shunt upon one circuit and a coil connected in series with another circuit. 4th. The combination with circuits upon which the impressed electromotive forces are in quadrature of a meter, the actuating device of which consists of an armature, its shaft, and two sets of actuating coils each comprising a shunt-connected and a series-connected coil, the shunt-connected coils being upon opposite sides of the shaft, and the series-connected coils being likewise upon opposite sides of the shaft but having their axes in different radial lines from the shunt-connected coils. 5th. The combination with a three-wire multiphase system of alternating current distribution, of a meter having two sets of actuating coils, each set comprising a shunt-connected and a series-connected coil, the two series-connected coils being connected respectively in two of the three wires and the shunt-connected coils being connected respectively between the third wire and the wire with which the corresponding series-connected coil is not connected. 6th. The combination with a three-wire multiphase system, of alternating current distribution, of a meter comprising an armature, a series-connected coil in one wire, a shunt-connected coil connected between the second and third wires, said coils being so related as to produce a shifting field when traversed by alternating currents differing in phase to the effects of which said armature is subjected, a series-connected coil connected in the said second wire, a shunt-connected coil connected between the first-named wire and said third wire, the last-named shunt and series-connected coils being related to each other and to said armature in the same manner as the first-named coils, and the two sets of coils so located with reference to each other as to independently affect said armature, a retarding device, and a counting, registering or indicating device operated by said movements of said armature. 7th. The combination of a multiphase system of alternating current distribution, and a meter for measuring the energy transmitted over the system consisting of an armature and two sets of actuating coils therefor, each set comprising a shunt and a series coil, the shunt

coils being respectively connected across different branches of the system, and each series coil being connected in a branch other than that between which its corresponding shunt coil is connected, said sets of coils acting independently to impel the armature, a retarding device for modifying the movement of the armature, and a counting, registering or indicating device operated by the movements of the armature. 8th. The combination with a multiphase system of alternating current distribution, of an armature and two sets of actuating coils therefor, each set comprising a shunt coil and a series coil, connections across different branches of the system including the respective shunt coils, each series coil being included in a branch of the system other than that between which its corresponding shunt coil is connected. 9th. In an electric meter, an armature and two sets of actuating coils, each set comprising a shunt-connected coil and a series-connected coil, the two shunt-connected coils so related to each other and to the armature as to produce no resultant torque upon the armature by reason of currents differing in phase traversing those coils alone, and the two series-connected coils likewise so related to each other and to the armature as to produce no resultant torque upon the armature by reason of currents differing in phase traversing those coils alone, each set of coils depending for its action upon currents differing in phase traversing the respective coils of that set. 10th. In an electric meter for alternating currents, an armature having a closed conducting circuit, and a retarding device having a closed conducting circuit in which currents are induced by its own motion, the temperature coefficients of the two conducting circuits with reference to electrical resistance being approximately the same.

No. 50,703. Alternating Current Measuring Instrument. (*Instrument à mesurer le courant alternatif.*)



Oliver B. Shallenberger, Rochester, Pennsylvania, U.S.A., 2nd December, 1895; 6 years.

Claim.—1st. In an electric meter the combination of an armature comprising a closed conducting circuit, an actuating coil in inductive relation thereto, an inductance coil connected in series with said actuating coil, a second actuating coil, a non-inductive resistance in series therewith, and means for determining the mechanical effect produced by the passage of alternating currents through said actuating coils. 2nd. In an electric meter the combination of an armature comprising a closed conducting circuit, an actuating coil in inductive relation thereto, an inductance coil comprising a winding connected in series with said actuating coil and a subdivided core containing an air gap, a second actuating coil, a non-inductive resistance in series therewith, and means for determining the mechanical effect produced by the passage of alternating currents through said actuating coils. 3rd. In an electric meter the combination of an armature comprising a closed conducting circuit, an actuating circuit including an actuating coil and an inductance coil, a second actuating circuit including an actuating coil and a non-inductive resistance, said actuating circuits being connected in parallel. 4th. In an electric meter the combination of an armature comprising a closed conducting circuit, an actuating circuit including an actuating coil and an inductance coil, a second actuating circuit including an actuating coil and a non-inductive resistance, said actuating circuits being connected in parallel, and means for indicating the resulting movement against an opposing force of definitely varying effect. 5th. The combination of an armature comprising a closed conducting circuit, an actuating circuit including an actuating coil and an inductance coil, a second actuating circuit including an actuating coil and a non-inductive resistance, said actuating circuits being connected in parallel, a damping device applied to reduce the oscillations of the armature, and means for indicating the deflection against an opposing force which increases with the deflection. 6th. The combination of a conducting disc mounted on a shaft capable of rotation, a graduated scale carried thereby, an actuating circuit of high self induction inductively related to said disc, a second actuating circuit of