thereby during said continuous movement controlling the connection of said branches with the main line, substantially as and for the purpose described. 3rd. The main line and three branch circuits, one containing a battery, one a magneto-generator and a third containing a source of currents of opposite polarity to that of the said battery, combined with a transmitting instrument, comprising a movable signaling surface, having a definite cycle of movement, the same at each operation, and actuator therefor, and circuit-controlling contacts operated thereby, by which the said branches are all connected to line each at different times during a single operation of said signaling surface, substantially as and for the purpose described. 4th. The actuating shaft and wheel, having a signaling surface loose thereon, and actuating spring connecting said shaft and wheel combined with a stop for said wheel released by said actuating shaft, and a second stop connected with said wheel-stop and operated thereby, the second stop being arranged to arrest the actuating shaft except when the first is engaged with the said wheel, substantially as described. 5th. The actuating shaft and transmitting wheel loose therein, combined with an actuating spring connecting the said shaft and wheel, an arm loose on said shaft and stops co-operating with said arm on said wheel, and a projection co-operating with said arm connected with said actuating-shaft, substantially as and for the purpose described. 6th. The actuating shaft and disk fixed thereon, having a portion of its periphery provided with ratchet-teeth, combined with a pawl to engage said teeth, a circuit-controlling wheel loose on said shaft, and an actuating spring connecting said shaft and wheel, and a stop for said wheel operated to release the wheel by the movement of the shaft, substantially as described. 7th. The actuating shaft movable to and held in different positions combined with a circuit-controlling wheel, having a signaling surface and electric contacts controlled thereby, a segment connected with said wheel, and a projection co-operating with the said segment connected with the actuating shaft, whereby the said segment is moved to prevent a portion of the signaling surface from operating the contacts, substantially as described. 8th. The combination of the main circuit and generator of electricity therein, with resistance in said circuit and contact points between different portions of said resistance, a switch movable over the said contact points, and an electro-magnet included in said circuit, and an armature therefor which engages and arrests the said switch when the attraction of the magnet overcomes the retractor of the armature, substantially as described. 9th. The combination of the actuating shaft, with a movable switch engaged by said shaft and an electro-magnet and its armature that arrests the said switch, a lock that retains the said switch in the position to which it has been moved, and a releasing device for said lock operated by said shaft before the latter engages the said switch, substantially as and for the purpose described. 10th. The combination of the actuating shaft with a movable switch engaged by said shaft and an electro-magnet and its armature that arrests the said switch, a hook that holds the said armature up to its magnet and an actuator for said lock on said shaft, by which the armature is released while the switch is engaged by the shaft, substantially as and for the purpose described. 11th. The main circuit and transmitting instrument, provided with a circuit-controlling wheel and electric contacts operated thereby, combined with a branch circuit containing a source of electricity which is connected to said main circuit during the movement of said wheel and another branch containing a telephone which is connected to said main circuit by the wheel controlled contacts when said wheel is arrested in its normal position, substantially as described.

No. 31,522. Bath or Solution for use in Separating Metals from their Ores and Process of Making the Same. *(Bain ou solution pour servir à la séparation des métaux de leurs minerais et procédé pour cet objet.)*

Jacob C. Wiswell, Medford, Mass., U.S., 7th June, 1889; 5 years.

Claim.—1st. A solution or bath for use in separating metals from their ores, consisting of aqua chlorine, soluble mercury, salt and muriatic acid, as set forth. 2nd. A solution or bath for use in separating metals from their ores, consisting of aqua chlorine, soluble mercury, salt, muriatic acid and iron salt, as set forth. 3rd. The process of producing a bath or solution for use in the separation of ores from their metals, consisting in subjecting salt water, muriate of ammonia, muriatic acid and liquid mercury to a current of electricity, as set forth. 4th. The process of producing a bath or solution for the separation of metals from their ores, consisting in placing aqua chlorine in a tank containing liquid mercury, and then subjecting the whole to a current of electricity, and adding iron salt to the solution thus produced, as set forth.

No. 31,523. Coin Operated Induction Coil.

(Bobine d'induction actionnée par une pièce de monnaie.)

Percy G. Williams and Alfred W. Roovers, Brooklyn, N.Y., U.S., 7th June, 1889; 5 years.

Claim.—1st. The combination, with a case, of an induction coil primary and secondary circuits therefor, a longitudinally movable part in electrical contact with the induction coil, electrodes outside the case, one of which is connected with the said movable part, a weight for moving said movable part in one direction, an arm adapted to be locked with said weight, a rod rigidly secured to said arm, time mechanism having a portion in one of said circuits, and a pin or projection on said rod adapted to contact with said portion of the time mechanism to close such circuit, substantially as specified. 2nd. The combination, with a case, of an induction coil primary and secondary circuits therefor, a longitudinally-movable part in electrical contact with the induction coil electrodes outside the case, one of which is connected with the said movable part, a weight for moving said movable part in one direction, an arm adapted to be locked with said weight, a rod rigidly secured to said arm, time mechanism having a portion in one of said circuits, and a yielding pin or projection on said rod adapted to contact with said portion of the time mechanism to close such circuit, substantially as specified. 3rd. The combination, with a case, of an induction coil, primary and secondary circuits therefor, a movable part in electrical contact with the induction coil, electrodes outside the case, one of which is secured to said movable part, a weight for moving said movable part in one direction, an arm adapted to be locked to said weight, a rod rigidly secured to said arm, a lever, a receptacle for a coin mounted on said lever, a pin or projection on said rod, and time mechanism, whereby when a cam has been deposited in the receptacle, the lever will rock to close circuit, and when the said movable part for the induction coil is moved outwardly and the weight is raised, said rod will be elevated, to permit the operation of the time mechanism and to cause the breaking of the circuit, substantially as specified. 4th. In a coin-operated induction coil, the combination of an indicator two electrodes extending outside the case, one constructed to be longitudinally movable, a coin chute, a coin receptacle moved on receiving a proper coin from the chute, an electric circuit, circuit-changers operated upon the movement of the coin receptacle, gearing imparting movement to the indicator, and mechanism operated upon the movement of the coin receptacle to connect said gearing with the movable electrode, substantially as specified. 5th. In a coin-operated induction coil, the combination of an indicator, two electrodes extending outside the case, one constructed to be longitudinally movable, a coin-chute, a coin-receptacle moved on receiving a proper coin from the chute, an electric circuit, circuit changers operated upon the movement of the coin receptacle, time mechanism gearing imparting movement to the indicator, and mechanism operated upon the movement of the coin receptacle to connect said gearing with the movable electrode, substantially as specified. 6th. The combination of an indicator, a rod connected therewith for operating the same, a movable electrode, a lever having at one end a coin-receptacle, and a catch operated by said lever to lock the movable electrode to the said rod, substantially as specified. 7th. The combination of an indicator, a rod connected therewith for operating the same, a movable electrode, a catch for securing the movable electrode to the rod, a lever and a sliding trip, substantially as specified. 8th. The combination of a coin chute, a lever carrying a receptacle for coin, a movable electrode, and a catch operated to be rocked, and locked to the said movable electrode by means of a working lever, substantially as specified. 9th. In a coin operated induction coil, the combination, with an electrode, of a weight secured thereto and elevated when said electrode is drawn outwardly, an arm adapted to be locked to said weight, a rod frictionally secured to said arm, a trip on said rod, a lever, a receptacle for coin composed of sections and mounted on said lever, and an opening and closing device operated by said trip upon the lowering of said weight to open said receptacle, substantially as specified. 10th. The combination, with a movable electrode, of a weight connected to said electrode, an arm connected to said weight, a rod having a sliding connection with said arm, an abutment for said rod, a receptacle for coin and an opening and closing device operated by said rod, substantially as specified. 11th. The combination, with a longitudinally movable electrode, of a weight secured thereto and elevated when the electrode is drawn outwardly, an arm adapted to be locked to said weight, a rod adapted to be locked to said arm and moved upwardly therewith, time mechanism and a pin or projection on said rod adapted upon the descent of said rod to rewind said time mechanism, substantially as specified. 12th. In a coin operated induction coil, the combination, with the weight A3 provided with a groove c^3, of the arm H provided with a dog H^2 adapted to engage said groove, and the lever B^2 provided with a pin e^2, substantially as specified.

No. 31,524. Running Gear for Vehicles.

(Train de voiture.)

Targe G. Mandt, Stoughton, Wis., U.S., 7th June, 1889; 5 years.

Claim.—As an improved article of manufacture, the herein described running gear for vehicles comprising the following elements: the axles 1 and 2, head block 3, fifth wheel 4, rod 12 having perforated ears 13, springs 14, bar 16 having perforated ears 15, side bars 18, bifurcated king-bolt 42, shackle 44 having bolt 46, yoke 47, all constructed and combined substantially in the manner and for the purpose set forth.

No. 31,525. Gas Burner and Heater.

(Bec et cuisinière à gaz.)

Daniel S. Robilliard and Charles G. Davies, Québec, Qué., 7th June, 1889; 5 years.

Claim.—1st. The combination, with a bell-shaped air chamber and a mixing chamber immediately over the same, and connected therewith, of a gas supply pipe passing through the air chamber into the mixing chamber, substantially as specified. 2nd. The combination, with an air chamber open at bottom and top, and a mixing chamber immediately over the same and connected therewith, of an enclosing head provided with an inner cup-shaped concentric diaphragm, and a gas supply pipe passing through the air chamber and into the mixing chamber, substantially as shown and described, whereby a series of connecting chambers are formed outside the mixing chamber, and the gas and air superheated and expanded by the burning gas, as set forth. 3rd. The combination, with the base or body having air passages therein and a gas supply pipe entering said body, of a receptacle secured to said body constituting a mixing chamber, an apertured cap secured to the gas supply pipe penetrating the mixing chamber, baffle plates adjacent to the mixing chamber, and an apertured casing spaced from and surrounding the baffle plates and mixing chamber, substantially as and for the purpose specified, whereby a superheating chamber is obtained as set forth. 4th. The combination, with an open base, a gas supply pipe passing upward through the same, an annular plate resting upon said base, provided with a central collared opening constituting a mixing chamber, of an apertured cap secured to the gas inlet pipe extending in the mixing chamber, a ring resting upon the annular