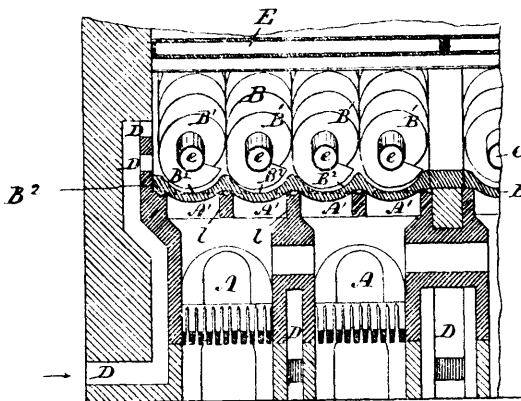


sions from said wings, a plunger-head, said wings and plunger-head being movably connected so that as the plunger-head reciprocates the pivoted wings are actuated, substantially as and for the purpose set forth. 4th. In a baling-press, the combination, with a supporting standard, A, of the reciprocating plunger-bar, C, provided with the plunger-head, B, a condenser comprising the stationary portion, 22, and the movable wing portions, *a, a*, provided with the interlocking fingers, *x*, the shaft, 23, provided with the curved ends, 25, securing said movable wings to the stationary portion, the pivoted levers, 26, being provided with the terminal slots, 29 and 31, said slots 29 being adapted to engage a projecting pin, 28, forming part of the plunger-head, and said slots 31 adapted to engage the curved ends, 25, of the shaft, 23, all arranged substantially as and for the purpose set forth. 5th. In a mechanical movement, the combination with two mating scroll-gears, a pin upon one of said gears, of a projecting arm provided with a shoe having two curved faces, said faces being adapted to engage said pin upon the mating scroll-gear, so that said scroll-gears are securely and snugly locked while making the change in speed, all substantially as and for the purpose set forth. 6th. In a baling press, the combination with a suitable supporting frame, of a condenser, comprising an upwardly extending sill, having two pivoted wings secured to said sill, said wings having downwardly extending arms, said wings being provided with interlocking fingers, of two slotted arms pivotally secured to the frame and having one end thereof secured to said arms, and a pin secured within the plunger-head and working within said arms to actuate said fingers, all substantially as and for the purpose set forth. 7th. In a baling press, the combination with a main supporting frame, of a condenser comprising an upwardly extending sill, 22, provided with the terminal shafts, 23, the hinged wings, *a*, the rack-fingers, *x*, secured to each of said shafts, 23, being provided with the curved lower stem 25, the slotted levers, 26, working in conjunction with said curved stems, 25, said levers being pivotally secured to the main supporting frame, a reciprocating plunger-head provided with an upwardly extending pin adapted to reciprocate within the slotted openings, 29, of the arms, 30, to actuate said arms, all substantially as and for the purpose set forth. 8th. The combination, with two scroll-gears, of a mechanical means to catch and guide the teeth of said scroll-gears into proper contact at the moment of the change of speed, substantially as and for the purpose set forth.

**No. 55,145. Process and Furnace for extracting precious Metals from the Ore.** (*Procédé et fournaise pour extraire les métaux des minerais.*)



Frederick George Jordan, Spokane, Washington, U.S.A., 4th March, 1897; 6 years. (Filed 2nd May, 1896.)

**Claim.**—1st. The process of treating metallic ores, which consists in subjecting the ore when reduced or pulverized to gradually increased heat in the presence of oxygen, so that at various points of passage through a furnace the refractory elements, compound or base metals are eliminated, discharged or driven off, and the base metals secured by running off when the melting temperature is reached, and the precious metals run off when the highest temperature is obtained, substantially as set forth. 2nd. The process of treating precious ores, which consists in first pulverizing the ore, then gradually heating it in the presence of oxygen to a temperature above the melting point of any base metals contained in the ore, whereby said base metals are melted and run off or volatilized, and finally suddenly cooling the ore to disintegrate the matrix or similar impurities. 3rd. The process of treating precious ores, which consists in first pulverizing and drying the ore, then gradually raising the temperature of the ore and supplying it with an abundance of air, the heat being increased until above 1,200° Fahrenheit, then suddenly subjecting the ore to a bath of water, substantially as described. 4th. The process of treating precious ores, which consists in first pulverizing and drying the ore, then gradually raising the temperature of said ore above 1,200° Fahrenheit, then suddenly subjecting the ore to a bath of cold water, agitating and scouring by attrition the

residue with an alkali, and then amalgamating the precious metals with mercury, substantially as described. 5th. A furnace for treating ore, provided with a combustion chamber, a hearth forming the bottom of said chamber, a stage above one end of the combustion chamber, a heating furnace beneath the end of the hearth opposite the stack, and a flue running beneath the hearth from the heating chamber to the stack, in combination with an ore hopper above and adjacent to the combustion chamber, said hopper being arranged to discharge into the cooler end of the hearth, mechanism for causing the ore to travel over the hearth from beneath the hopper to the opposite end of the hearth, and a water receptacle arranged to receive the ore as it is discharged from the hearth, substantially as described. 6th. A furnace for treating ores, having a combustion chamber, an inclined hearth forming the bottom of said chamber, a heating furnace below the lower end of said hearth, and a stack above the combustion chamber at the highest end of the hearth, and a series of flues opening into the combustion chamber near the lowest end of the hearth, a series of air holes arranged along the line of the conveyer shaft to distribute hot air freely into the ore, when said shaft is hollow for air passage, in lieu of containing water, in combination with a plurality of ore moving devices arranged to receive the ore from the highest end of the hearth, substantially as described. 7th. A furnace having a combustion chamber and an ore hearth forming the bottom of said chamber, a heating furnace below one end of said hearth and provided with a flue extending to the opposite end of the hearth and directly below the same, a stack above one end of the combustion chamber and connected therewith to the stack above the combustion chamber, in combination with a trough-shaped hollow condenser arranged to be filled with water and located between the stack and combustion chamber, substantially as and for the purpose described. 8th. In a furnace for treating precious ores, an inclined hearth provided near its lowest end with sinks or wells and channels leading therefrom, a crucible to which said channels lead, and a heating furnace beneath the lower end of the hearth, in combination with means for removing the ore from the highest to the lowest end of the hearth, and a water receptacle below the lower end of the hearth and arranged to receive the heated ore therefrom, substantially as described. 9th. In a furnace for treating precious ores, the combination with an inclined hearth, of a spiral conveyer having a hollow shaft arranged to receive air, or a cooling fluid, and placed adjacent to said hearth, and adjustable mechanism outside of furnace for imparting a rotary motion to the conveyer, substantially as and for the purpose described. 10th. An ore extracting furnace, comprising in combination with a combustion chamber or fire box A, an oxidizing desulphurizing, calcining or chloridizing chamber B, having an inclined corrugated or grooved ore path or hearth forming the bottom of said chamber B, a smoke flue A1 below said hearth, worm or screw conveyors B1 within the corrugations or grooves in said hearth and feeding the descent of the ore, said worm or screw having a hollow shaft *e* provided with perforations *e1*, water chambers E and condensers E1, E2, E3, forming the roof of said chamber B, a dust chamber J above said condensers, a drying and feed hopper F within said chamber B discharging at the upper end of the hearth and worm, crucibles H arranged to receive the melted base metals, and the cold water baths G at the lower end to receive the melted precious metals, substantially as set forth. 11th. In an ore treating furnace, the combination with the combustion chamber or fire box A, an oxidizing chamber B having an inclined hearth provided with a series of concave channels, and worm or screw conveyors, one in each channel, said hearth having passages connecting with a gutter *l*, to flow into a crucible *m*, the melted metal, as set forth. 12th. The combination in an ore treating furnace, of an inclined concave hearth and screw conveyors, and a differential gearing C, regulating the rotation of the conveyors, to increase and lessen the speed of the ore over the hearth, for the purpose set forth. 13th. The combination in an ore treating furnace, of an oxidizing chamber B, having water chambers E, and condensers E1, E2, E3, for utilizing waste heat, to heat water for amalgamating and steam uses, and the crucibles H, receiving the melted base metals from a gutter or gutters *l*, as set forth. 14th. In an ore treating furnace, the combination with the fire box A, and inclined hearth B2, of the oxidizing chamber B, provided with inlet air passages D, and having water chambers E, condensers E1, E2, E3, and feed and drying hoppers F, located within said chamber B, as and for the purposes set forth. 15th. A furnace for treating ores having within it water chambers or tanks to economically obtain hot water for steam and amalgamating purposes, whereby the process of amalgamation may be carried on during any state or change in atmospheric temperature.

**No. 55,146. Automatic Cut-Out for Electrical Transformer.** (*Interrupteur automatique pour transformateurs électriques.*)

William Joseph Greene, Cedar Rapids, Iowa, U.S.A., 4th March, 1897; 6 years. (Filed 3rd August, 1896.)

**Claim.**—1st. In an automatic cut-out for electrical transformers, the combination of a switch-lever provided with switches to close and open the primary and secondary circuits, a working or service transformer, a pair of electro-magnets or solenoids adapted to actuate said switch-lever alternatively, and means for alternately energizing said electro-magnets, consisting of a permanent source of electrical energy and an electro-magnet in series with the second-