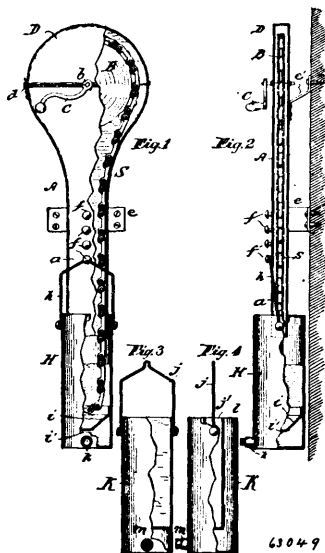
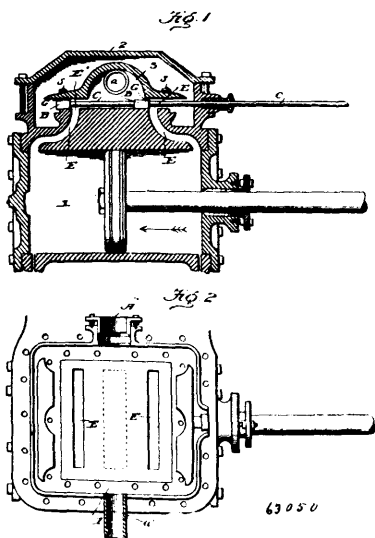


receptacle for the chain separate from the vehicle, a container for a suitable fluid at the bottom of said receptacle, a settling chamber



connected with said container by a contracted orifice, a cover for the receptacle, and a sprocket wheel in the upper part of said receptacle for moving the chain through the fluid, substantially as described. 3rd. In a device for cleaning or lubricating vehicle chains, a receptacle for the chain separate from the vehicle, a sprocket-wheel in said receptacle for moving the chain, and interchangeable vessels the one containing material for cleaning, and the other material for lubricating the chain, and said vessels being each adapted to be attached to the said receptacle so that the chain shall dip into its respective contents.

**No. 63,050. Valve. (Soupape.)**



Orson Morris, Willard Alonzo Keys and Cyrus Thompson Gamble, all of Red Canon, Wyoming, 12th May, 1899; 6 years. (Filed 17th October, 1898.)

**Claim.**—1st. The combination with the cylinder, a steam chest, and the ports leading from the chest to the cylinder, of a balance plate located within the chest and secured wholly to the valve seats, and provided with a recess, a valve for alternately admitting steam at one end of the cylinder, and exhausting it at the other end into the recess of the balance plate, and the exhaust pipe extending through the sides of the steam chest and communicating with the recess of the plate, substantially as described. 2nd. In a valve, the combination with the body portion thereof, having a transverse recess in its ends, packing strips located in said transverse recesses, and provided with clamping springs for supporting and exerting an upward pressure on said strips, and clamping plates bolted to the ends of the valves to close said recesses, substantially as set forth. 3rd. A valve having a transverse recess in one of its sides, a packing

strip located in said recess, screws mounted in said recess against rotation, a spring supported by said screws and in turn supporting the packing strips, nuts for adjusting the tension of the screws, and a clamping plate secured to the side of the valve to enclose the parts arranged within the recess, substantially as specified.

**No. 63,051. Treatment of Zinc Bearing Ore.**

(*Traitement de minerai de zinc.*)

Cowper Cowles Metals Extraction Syndicate, Hayle, Cornwall, assignee of Sherard Osborn Cowper-Cowles, 39 Victoria Street, London, England, 12th May, 1899; 6 years. (Filed 9th September, 1898.)

**Claim.**—1st. A process for the treatment of complex zinc ores, such as those known as Broken Hill ore, consisting in placing the ore in leaching vats after it has been roasted, crushed and screened then treating it with a weak solution of sulphuric acid to abstract the zinc and copper, then passing such solution containing zinc sulphate and copper sulphate through a body of zinc and carbon or iron and barbon or both to recover the copper, and then electrolyzing the remaining solution to recover the zinc substantially as described. 2nd. A process for the treatment of complex zinc ores, such as those known as Broken Hill ore, consisting in mixing with the said ore prior to the roasting a quantity of zinc blende, copper sulphide ore, or tin ore or tailings thereof then roasting it to a dead roast, then crushing and screening it, then placing it in vats where it is leached with a weak solution of sulphuric acid to abstract the zinc and copper, then passing such solution containing zinc sulphate and copper sulphate through a body of zinc and carbon or iron and carbon or both to recover the copper and then electrolyzing the remaining solution to recover the zinc, the said leaching solution after its strength has been adjusted being returned to the leaching vats for use over again, substantially as described. 3rd. A process for the treatment of complex zinc ores, such as those known as Broken Hill ore, consisting in first roasting, crushing and screening the ore, then placing it in vats and washing the ore with water, then leaching the ore with a weak solution of sulphuric acid to abstract the zinc and copper, then passing such solution containing zinc sulphate and copper sulphate through a body of zinc and carbon or iron and carbon or both to recover the copper, the electrolyzing the remaining solution to recover the zinc, then again washing the ore with hot water, then treating the ore with a solution of caustic soda to extract the lead in the form of sodium plumbate, and then treating this sodium plumbate solution with carbonic acid gas under pressure to obtain lead carbonate and lead hydrate, substantially as described. 4th. A process for the treatment of complex zinc ores, such as those known as Broken Hill ore, consisting in first roasting, crushing and screening the ore, then placing it in vats and washing the ore with water, then leaching the ore with a weak solution of sulphuric acid to abstract the zinc and copper, then passing such solution containing zinc sulphate and copper sulphate through a body of zinc and carbon or iron and carbon or both to recover the copper, then electrolyzing the remaining solution to recover the zinc, then again washing the ore with water, then treating the ore with a solution of caustic soda to extract the lead in the form of sodium plumbate, and the electrolyzing the solution to recover the metallic lead, substantially as described. 5th. A process for the treatment of complex zinc ores, such as those known as Broken Hill ore, consisting in first roasting, crushing and screening the ore, then placing it in vats and washing the ore with water which is afterwards run into an evaporating pan, then leaching the ore with a weak solution of sulphuric acid to abstract the zinc and copper, then passing such solution containing zinc sulphate and copper sulphate through a body of zinc and carbon or iron and carbon or both to recover the copper, then electrolyzing the remaining solution to recover the zinc, then again washing the ore with water which is afterwards also run into the evaporating pan, then treating the ore with a solution of caustic soda to extract the lead in the form of sodium plumbate, then electrolyzing the solution to recover the metallic lead, and then leaching the remaining ore in the vats with potassium cyanide and subsequently electrolyzing such solution to recover the metallic silver and gold, substantially as described. 6th. In the preparatory treatment of complex ores, the admixture with the ore prior to its roasting of a quantity of zinc blende, copper sulphide ore, or tin ore or tailings thereof substantially in the proportions stated and for the purpose specified. 7th. In a process in which a complex ore containing zinc and copper is leached with a solution of sulphuric acid, the recovery of the copper from said leaching solution by passing it through a body of zinc and carbon or iron and carbon or both, substantially as described.

**No. 63,052. Electric Furnace. (Fournaise électrique.)**

The Willson Carbide Works Company of St. Catherines, Ontario, Canada, assignee of Frank Creelman, New York City, New York, U.S.A., 12th May, 1899; 6 years. (Filed 22nd September, 1898.)

**Claim.**—1st. An electric furnace comprising a crucible or furnace chamber, a pair of carbon pencils movable up and down within said crucible or chamber, an electric generator having its opposite terminals connected to said pencils respectively, and means for raising said pencils as the mass of product accumulates in said crucible or chamber, whereby the current arcs from one carbon