

226,920.—*Compound soap.* EDWARD LYON.

Water, sixty gallons; Babbitt's best soap, twenty cakes; aqua ammonia fortior, half a pint; sal-soda, ten pounds; salt, one gill; hyposulphite of soda, one pound.

226,933.—*Preparation for coating ingot moulds.* AUGUSTUS L. SIMONDI.

100 parts of tallow and 27 of lamp black.

226,965.—*Extracting gold, etc., from ores.* JOHN F. BOYNTON.

Consists in the treatment of the ore with chlorine gas, in an apparatus constructed for that purpose.

227,018.—*Process and apparatus for distilling alcohol.* GEORGE W. KIDD.

Distillation under a partial vacuum and at a low temperature.

227,027.—*Apparatus for the manufacture of nitric acid.* PAUL MARCELIN.

Brief: May use stem-valves in place of hand-holes.

227,032.—*Manufacture of bicarbonate of soda.* WILLIAM T. MENZIES.

In a solution of commercial carbonate of soda, the caustic soda is neutralized by carbonic acid, then the sulphur compounds are oxidized with chloride of lime, and, finally, bicarbonate of soda is precipitated from the clear solution by carbonic acid.

227,076.—*Galvanic Battery.* FERDINANDO TOMMASI.

227,080.—*Roofing and paving material.* CYRUS M. WARREN.

Coal-tar residuum is fused with wax tailings, candle-tar, fat or fat-oil, and a compound of natural bitumen, or asphaltum, with petroleum residuum.

Foreign Patents.

Condensed from R. BIEDERMANN'S Report to the German Chemical Society,

by OTTO H. KRAUSE.

O. BRAUN, Berlin: *Apparatus for cooling and warming gases mixed with vapors of liquids.* (Germ. P., No. 8585, July 19, 1879.)—A square tank with suitable openings for the admission of the vapors, &c., and for the exit of the condensed liquid and uncondensed gases. A second vessel, from the bottom of which wide cooling pipes, closed at their lower ends, project into the tank, forms the cover. A third vessel, with open tubes passing into and nearly reaching the bottom of the cooling pipes, is placed above it. The cooling liquid flows from the third vessel down through the tubes into the cooling pipes, and rises up in them into the second vessel, whence it is drawn off.

KARL MOELLER, Kupferhammer, near Brackwede: *Apparatus for filtering gases and vapors.* (Germ. P., No. 8806, June 17, 1879.)—The apparatus contains several independent, vertical, horizontal or inclined chambers. The gases to be filtered are made to pass through fine sieves, or through filters of cotton, mineral wool, or asbestos, which retain the suspended particles of liquid or dust.

ALEXANDER MUELLER, Berlin: *Preparation of a metallic plush for use in filtering under pressure.* (Germ. P., No. 9248, July 22, 1879.)—A perforated plate, the holes of which are filled with parallel wires, the ends projecting on the pressure side, and held in place by adjustable wedges. It is advantageous to apply a layer of asbestos to the back of the plate.

A. MARIA Y GARCIA, Aquilas: *Desilverization of lead.* (Engl. P., No. 708, February 21, 1879.)—Antimony and iron are removed by blowing air through the molten metal. The resulting scum contains besides plumbic oxide, antimonie and ferric oxides. After removing it, the lead is desilverized with the aid of zinc. The oxides are treated with pyropligneous acid, and the solution, separated from the antimonie oxide, worked up into acetate of lead. The oxides, rich in silver, are also treated with acetic acid, and cupellation thereby avoided.

J. F. N. MACAY, Charapots, Ecuador: *Method for preparing ferric oxide and cupric chloride simultaneously.* (Germ. P., No. 9565, November 20, 1879.)—A solution of ferric chloride and cupric oxichloride are heated to boiling in the presence of air. For the ferric chloride, ferric sulphate and sodium chloride may be substituted.

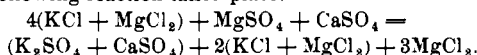
K. and T. MOELLER, Kupferhammer, near Brackwede: *Purification of waste waters containing suspended matters.* (Germ. P., No. 9276, October 11, 1879; addition to Germ. P., No. 7014, August 20, 1878.)—Instead of passing carbonic acid into the waste waters treated with lime, as formerly proposed, they are made to pass through a graduation house, or over a slightly inclined plane, the carbonic acid in the atmosphere precipitating the lime.

ACTIENGESELLSCHAFT CROIX, at Croix: *Improvements in the manufacture of alkaline carbonates by means of trimethylamine.* (Germ. P., No. 9376, September 9, 1879; addition to Germ. P., No. 5786, October 6, 1878.)—Claims the application of mono- and dimethylamine, mono-propylamine and mono-isobutylamine, contained in commercial trimethylamine.

FELIX DE LALANDE, Paris: *Method of preparing green coloring matters by treating the sulpho derivatives of dibenzylaniline, dibenzyltoluidine and dibenzylidiphenylamine, with oxidizing agents.* (Germ. P., No. 9569, July 25, 1879.)—According to the strength of the sulphuric acid employed to react upon the above mentioned bodies, insoluble or soluble sulpho derivatives may be obtained. The former, for instance, by heating 10 pts. dibenzylaniline with 30–40 pts. sulphuric acid, of sp. gr. 1.834, to 150–170° C.; the latter, by digesting with four times its weight of fuming sulphuric acid, at 160° C. The sulpho acids are dissolved in calcium or sodium hydrate, and oxidized with potassium bichromate and acetic acid. The coloring matter is precipitated by excess of sodium chloride, mixed with 2–3 parts of sodium acetate, and dried. The liquid which contains the soluble sulpho acids is neutralized, and sulphates and coloring matter precipitated by barium chloride. Boiling solution of sodium hydrate extracts the coloring matter from the precipitate. The coloring matters are acids soluble in water, forming alkaline salts which are but slightly colored. The goods are first passed through an alkaline bath and finished in an acid solution.

C. N. HAKE, Doglashall, Westeregeln: *Manufacture of potassium sulphate from carnallite salts.* (Germ. P., No. 9108, October 13, 1878.)—Crude Stassfurt salts (containing about 16 per cent. of potassium chloride, as carnallite), are dis-

solved in the least amount of water, and the solution mixed with gypsum and kieserite. The following reaction takes place:



Potassium sulphate is extracted by boiling water from the calcined double sulphate of potassium and calcium.

JOSEPH TOWNSEND, Glasgow: *Manufacture of soda, potash, sulphuric acid and chlorine.* (Engl. P., No. 1703, April 30, 1879.)—This invention relates to processes in which magnesium and aluminium salts and silicic acid come into use. Most of the reactions have long been known.

1. 50 kgm magnesium sulphate and $48\frac{3}{4}$ kgm sodium chloride are intimately mixed and heated in a retort, to 210°C ., steam being admitted. Hydrochloric acid is evolved, sodium sulphate and magnesia remain. (This process was worked by Raman de Luna, in 1855.)

2. 50 kgm magnesium sulphate, $48\frac{3}{4}$ kgm sodium chloride and silicic acid, are mixed, dried and heated, in a retort, to $400\text{--}650^\circ\text{C}$. The porous mass is again heated in vertical clay retorts and air passed through it. Chlorine is evolved. magnesium silicate and sodium sulphate remain.

3. The same mixture is treated with steam. When the disengagement of hydrochloric acid has ceased, the mixture is very strongly heated. Sulphuric acid distills off, and magnesia and sodium silicate remain.

4. Kainite, mixed with silicic acid, or silicates, is subjected to the same treatment; sodium sulphate, potassium sulphate, magnesium silicate and aluminate resulting.

5. Magnesium chloride solution, of $80\text{--}100^\circ$ Twaddle, is mixed with 10 per cent. manganic oxide, heated to 44°C ., and air passed through it. Chlorine is evolved continuously, if hydrochloric acid be added, as the magnesium chloride is decomposed. Addition of 25–30 per cent. calcium chloride, facilitates the process. (Method published previously by Clemm, Dingler's Polyt. Journ., 173, 127.)

JOHN B. SPENCE, London: *Utilisation of metallic sulphides.* (Engl. P., No. 1855, May 9, 1879.)—Ores containing the sulphides of lead, zinc, iron, copper and silver, are to be finely pulverized, mixed with oil, and used as a "blue" paint. Or they may be calcined, treated with sulphuric acid, and again heated. Water dissolves out sulphates of zinc and copper, the latter to be precipitated from the solution by zinc. The oxide of iron is to be used as venetian red, after separating it from the lead and silver sulphates. The inventor also claims these methods of separation as new.

ACTIENGESELLSCHAFT CROIX, Croix, near Roubaix: *Improvements in the process of preparing hydrocyanic acid and its derivatives, from trimethylamine.* (Germ. P., No. 9409, September 27, 1879.)—Vapors of commercial trimethylamine are passed through vessels heated to redness, and then through sulphuric or hydrochloric acid, which absorbs ammonia. They are subsequently led to a tank, furnished with a stirring apparatus, and containing oxide of iron suspended in a solution of caustic potash. Yellow prussiate of potash is formed. From the condensers the unabsorbed illuminating gases are pumped to a gas holder.

