# PATENTS OF INTEREST TO CHEMISTS.

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*Ore Separators, etc.*—James B. Montgomery has a new form of ore concentrator (495,003). Orrin B. Peck adds one more to his list of patents on a centrifugal ore separator (495,681), and M. W. Iles covers his process of and apparatus for the extraction of matte from slag by numbers 494,570 and 494,571. A. L. Engelbach and S. E. Bretherton have an apparatus for reducing and smelting sulphide ores (496,250). Charles M. Allen takes out three related patents: 496,032 treats of his process of smelting ores and refining metals, which is conducted in a converter (496,033), which has a patent tuyere (496,034). The ores are fed into this converter and the blast is passed through the molten metal for a time, then checked by plugging the tuyeres to permit slag, matte, and metal to separate in the converter at different heights, and enough molten metal is retained each time to ignite the next charge. Thomas A. Edison has a roller for crushing ores (498,385). N. L. Raber (497,603) and A. B. Kittson (497,669) have each an amalgamator, and Uriah Cummings patents his ore crusher (498,424). C. B. Walker has a new form of ore concentrator (497,843), and Charles G. Brown a patent ore tank for leaching (497,856). Orrin B. Peck protects his centrifugal ore separator by 497,204, while F. H. Wheelan (498,597), W. P. Miller (497,474), Charles G. Buchanan (497,117), and Albert M. Bair (496,391) have each a separator. William Stubblebine's metallurgical furnace (498,089) and M. Mannaberg's steel-smelting furnace (498,670) are recent issues, as well as Joseph McClelland's tuyere (498,565). An apparatus for removing matte from slag is the joint invention of Thomas Drohan and Thomas Pearce (496,823). John W. Marshall is the patentee of an ore-stamping mill (493,384) and of an ore stamp (493,385). Charles J. Fauvel has a new furnace for the treatment of refractory ores (493,076). C. W. Beehler is the inventor of a hydrothermal mining process (497,513), which consists in filling a closed casing with a liquid body, inserting in bore hole, and heating by electric resistance coil, so that the expansive force of the liquid may be exerted within the drill hole.

*Lead.*—"Sublimed lead pigments" are prepared by E. O. Bartlett by driving off lead fumes from lead-bearing material in suitable furnaces, carrying the fumes through flues at a red heat, and separating the purified fumes by screening from the gaseous products (496,038). Two more patent processes for the manufacture of white lead. 496,109, A. B. Browne, patentee, consists in placing lead in a solution of a nitrate of an alkaline base; the current is then passed and the alkaline hydrate formed at one pole precipitates the lead which has been dissolved, and the resultant lead hydrate is dried in an atmosphere of carbon dioxide. 495,490 is the invention of Andrew Honman and Victor Vulliez. Lead sulphate is dissolved in a solution of caustic soda or potash or ammonium acetate, heated, and precipitated with an alkaline carbonate and dried.

*Fertilizers.*—Ludwig Rissmüller manufactures superphosphates from kettle residues of glue factories by mixing residues with warm sulphuric acid (50 B.) and heating to 200° F. After the nitrogenous matters are dissolved by the acid, the gypsum is precipitated and the fat rises to the surface, the separated solution is treated with phosphate of lime to take up all the sulphuric acid (494,939). 494,940 is a similar process, applied to animal carcasses, etc. Omar T. Joslin treats tank water with sulphuric acid, adds five to thirteen per cent. of a concentrated solution of waste fullers' earth dissolved in sulphuric acid, and dries the product at 300 -350° F. (495,042); and 495,043 is also his patent for manufacturing fertilizer from tank water in which acid phosphate of calcium in combination with fullers' earth is used, instead of the latter alone. Philip C. Hoffman treats pulverized phosphates of the "Florida phosphate" class with sulphuric acid, heats, and maintains the temperature above the normal temperature occasioned by chemical action, which is usually 50° C., but yet below that at which pyrophosphates are formed (496,687). Robert Reiman chemically dissolves natural bone or bone meal into its constituents, precipitating these elements, filters and washes and afterwards mixes with albumen, aluminum sulphate, and cellulose in solution, dries partly, then subjects to a high temperature and powerful pressure simultaneously, thus manufacturing artificial bone (494,891).

*Gold and Silver.*—Wm. Birkin subjects ores to the action of potassium cyanide, potassium ferricyanide, and hydrogen peroxide to extract the precious metals (494,054). For the lixiviation of gold and silver ores Samuel R. Whitall first mixes them with either caustic soda or potash, then treats with a solution of potassium cyanide and sodium hyposulphite and precipitates the precious metals by electrolysis (495,715). Fred. Webb has an apparatus for extracting precious metals from their ores (495,385), and John F. Wiswell treats ores as follows: Mercury is submerged in a solution of common salt which is electrolyzed. The calomel formed is dissolved in aqua regia, forming mercuric chloride, while the undecomposed salt solution is further electrolyzed, forming sodium hypochlorite. The ores are then treated simultaneously with both solution of the hypochlorite and mercuric chloride, and the dissolved metals are precipitated by adding bright iron fragments (495,212). F. W. Cleghorn separates precious metals from their ores by filtering through the ores a solution of sulphuric acid and sodium chloride, placing metallic iron in the filtrate and passing the current (497,014), while Henry Parkes uses one of two methods to accomplish the same end, treating the ores with potassium cyanide in the presence of oxygen under pressure (496,950), or treating with chlorine and then agitating with oxygen under pressure (496,951). Jabez Turton proposes to separate metals from ores by treating the ore or mineral to the action of a nitrate of an alkali metal, sodium chloride, and sulphuric acid, separating the earthy matters and precipitating the metals (494,044).