take place in or near Chicago. The American Association will hold its meeting in the latter part of August, at Madison, Wisconsin, and the Chemical Section is one of the most powerful sections of that Association. It is probable that the next meeting of the Association of Official Agricultural Chemists will be held in Chicago at or near the time of the World's Congress. The American Pharmacists' Association will also hold its annual meeting in Chicago at about this time and there is a very strong chemical section in this Association. It is thought also that the Mining Engineers may hold a meeting in Chicago, at about this date, although this is a matter which is not yet definitely determined.

When all these facts are considered it is seen that the opportunity is now offered American Chemists of promoting one of the most important Congresses that the science of chemistry has ever called together; a Congress which will not only be of absorbing interest during its meetings, but far reaching in its influence on the science and practice of chemistry in all parts of the world.

For particulars in regard to the place and time of meeting, and for information concerning the obtaining of quarters, and for all detailed matters concerning the Congress, American chemists are requested to address Professor J. H. Long, corner 26th street and Prairie avenue, Chicago, Ill., who will turn the requests over to the proper Committee for attention. Titles of papers to be presented should be sent to the Chairmen of the several subsections, or to the Chairman of the Joint Committee.

H. W. WILEY,
Chairman of the Joint Committee.

PATENTS OF INTEREST TO CHEMISTS.

EDITED BY ALBERT H. WELLES.

Ore Separators, etc.—Orrin B. Peck has a number of patents on a centrifugal ore separator (489,090, 489,197 to 489,205 and 490,084), and 490,041, a centrifugal amalgamator. Nos. 489,744, 490,849, and 490,850 were granted George Johnston for an ore concentrator; 490,911 to Wilhelm Krug for an ore separator; 489,538 to William S. Lockhart and E. W. Streeter for a hydraulic mineral separating apparatus; 489,797 to Charles Faber for an ore washing machine; and 489,101 to Charles E. Seymour for an ore separator. Horace F. Brown has two patents on an ore roasting furnace (489,142–143). John E. Chaster (492,711), Fred O. Norton (491,686), and Charles C. Ormsby (492,425) have each patented an ore amalgamator, while the last also covers his process by 492,426. Orrin B. Peck has a "machine for centrifugally treating molten materials" (491,131), and Adolph Schulenberg an ore crushing mortar (492,634). William H. Howard invents an apparatus for removing matte from slags (489,307).

Iron and Steel.—Walter E. Koch has patented a new furnace for heating steel ingots (489,017). 490,451 is a method for making metal plates by John B. Nau, and 490,236 a process for manufacturing sheet iron by Walter D. Wood. John B. Jenkins heats malleable cast iron, cast steel, Bessemer steel, etc., in contact with a compound consisting of granulated or powdered charcoal, manganese dioxide, chloride of sodium, cyanide of potassium, and chloride of ammonium, as a new process for the manufacture of steel (490,660). Another process (491,035), Taylor Allderdice, inventor, consists in placing a sufficient quantity of free carbon in a ladle to raise the carbon content of the steel to the point desired, and then pouring the metal into the ladle from the converter. Antoine P. G. Rollet is the inventor of a process for purifying pig iron, which consists in mixing the iron with fuel, limestone, fluor-spar and iron oxide, subjecting the mixture to the action of a blast and separating the refined iron (491,498) while 491,508 is the patent on the cupola furnace in which the operation is carried on. To convert malleable iron into steel, A. J. Hindermeyer uses plumbago, salt, and sulphuric acid (492,679). Alfred E. Hunt manufactures steel in the following way (493,090): The iron is first refined, and to it a deoxidizing agent is added; then the refined metal is recarburized by the addition of free carbon in sticks in definite proportions. A furnace for "roasting, calcining, and oxidizing metals and their compounds," invented by Herman Frasch, is protected by 492,551, and 491,274 is granted Thomas

Thomas for a desulphurizing furnace. A. Crossley has also a furnace for producing ferro-ferric and ferric oxides (491,085).

Nickel.—Numbers 489,574-575-576 and 881 are patents for obtaining and separating sulphide of nickel granted to Robert M. Thompson. The crude nickel obtained by smelting the ore with a suitable flux is resmelted with niter or salt cake with an excess of carbon, the sodium sulphide formed uniting with the nickel to form nickel sulphide, which is separated by specific gravity. John L. Thomson (489,882) uses instead of niter or salt cake in presence of carbon, sulphides of any of the alkaline metals or ammonium to produce sulphide of nickel. Arthur S. Grant, *et al.* (490,847) fuses ores containing nickel with calcium sulphate or other sulphates and the less easily oxidizable metals, as nickel, are left as sulphides.

Lead.—John J. Crooke frees copper and lead from foreign metals by fusing, then heating in an air blast to form oxides, and while fused, adding ammonium chloride and finely divided carbon (491,084). Andrew Honman and Victor Vulliez, of Victoria, protect their process, in this country, for the manufacture of white lead by U. S. patent 489,254. The reduced galena is roasted, treated with neutral lead acetate, the basic lead acetate formed is conveyed to a settling tank, then discharged into a closed vat, and the solution is subjected to the action of carbonic acid to precipitate the white lead. Norman K. Morris and John W. Bailey manufacture white lead by two processes. The first (493,173) consists in pulverizing lead carbonate and hydrated lead oxide and mixing with a volatile oil of the petroleum type; 493,106, the second, is described as first forming lead fiber into independent masses, charging with acetic acid by dipping and then exposing to the action of carbon dioxide and aqueous vapor. Bernhard Rösing (494,349) brings a molten oxygen compound of lead, as litharge, in contact with a sulphide, as galena, in order to separate the metal. Carl V. Petraeus (492,832) smelts lead ores in a low cupola furnace; pulverized galena in admixture with air is injected into the upper part of the furnace, and the resultant fumes are screened, making a lead pigment. Paul Bronner (491,635) digests crude lead sulphate with sulphuric acid, washes, treats with sodium carbonate, washes, dries and heats in a muffle the carbonate of lead thus obtained, digests the pure oxide of lead with lead acetate and precipitates with carbon dioxide to produce white lead. Horace F. Brown has a patent furnace for condensing lead fumes (489,144).

Tin.—Camille L. C. Bertou proposes (489,624) a process for precipitating oxide of tin from solutions, which consists in precipitating the tin from solutions containing it by carbonate of lime, adding the precipitant while the solution is exposed to the air at a temperature just below boiling, then cooling the liquid after complete precipitation, washing the precipitate with cold water and then suspending it in a solution of an alkaline carbonate, the strength of which is gradually increased until it has a faintly alkaline reaction. To separate tin from iron and steel Thomas Twynam first coats the surface of the tin with a special preparation, then oxidizes the metal and separates it from the iron (491,254).

Carbonic Acid.—For the preparation of pure carbon dioxide, E. Luhmann leads gases containing carbonic acid into sodium phosphate and heats to liberate the carbon dioxide (491,365).

Alkali Recovery and Ammonium Chloride.—Henry C. Higginson describes a new apparatus for the manufacture of whiting (491,353), and Godfrey L. Cabot (491,923) has an improved process for producing lamp black. Henry Blackman (492,382) describes an apparatus for recovering alkali, and Ludwig Mond (491,741) has an original form of apparatus for volatilizing ammonium chloride, zinc chloride and antimony being filled into the bottom of the retort which is exposed to the direct flame, while the ammonium chloride is fed from above through a hopper.

Manganese.—Professor Green and Dr. Wahl have a patent process for manufacturing manganese and its alloys, free from carbon (489,303). The ore is digested with dilute sulphuric acid, then the manganese in solution is reduced first to manganous oxide, then to the metallic state by heating in a furnace free from carbon, in contact with the chemically equivalent quantity of a metal capable of removing its oxygen.

Aluminum.—Thomas L. Wilson has two patents. 491,394 is on a process for electrically reducing aluminum and forming alloys from the metal. Alumina is electrolyzed, the anode consisting of molten base metal and the cathode of carbon, in the presence of finely divided carbon, the reduced aluminum uniting with the base metal to form an alloy. In connection with aluminum, we may mention a composition for soldering the metal which Georg Wegner proposes (490,840), *viz.*, 165 parts lead, 100 parts tin, and nine parts zinc, and his process for electroplating aluminum (490,841), which is as follows: The metal is first dipped into a bath at boiling temperature containing cyanides of silver and mercury to heighten its activity, then electrically coated with zinc, in a bath containing chloride of zinc and sulphate of soda, to protect the aluminum against the acid bath in coppering, silvering, gilding, etc.

Gold and Silver.—W. P. Miller patents a process for recovering precious metals (492,040) which is mechanical in its application; while John Blair places gold ores, saturated with a solution of sodium chloride and nitrate, in a perforated vessel, in a solution of sulphuric acid, and the soluble parts are washed back into the acid (492,133). Carl Moldenhauer treats ores bearing gold with a solution of potassium cyanide in the presence of potassium ferri-cyanide (492,221). Samuel H. Cochran also patents a process for separating the noble from the base metals (491,638). Frederick P. Dewey treats mixtures containing sulphides of silver and copper with concentrated sulphuric acid, then adds water, precipitates the silver by copper, and recovers the sulphate of copper from the remaining solution (490,068). William B. Jackson patents his process for treating ores (490,659), the steps in which are first chlorination of the ores, then solution of the chlorides in hyposulphite, and finally precipitation of the metals by the action of one or more zinc plates. To obtain gold, silver, and copper from their ores, Andrew French (490,193) mixes the pulverized ores with small percentages of niter cake or sodium bisulphate and common salt, treats in a furnace at a red heat, then leaches the mass.

Zinc.—489,460–461 are two patents granted to Parker C. Choate, for a process for obtaining metallic zinc. An ore of zinc carrying lead is heated with a reducing agent in a furnace, to which air is admitted, so as to volatilize the lead and zinc and other volatile constituents, heating the mixed lead and zinc fumes to "volatilize those constituents more volatile than zinc, and to granulate and condense the mass." The zinc is then reduced with carbon and distilled, and the molten lead is drawn off. Robert F. Nenninger produces zinc oxide from the sulphate or sulphite of zinc (489,873) by precipitating the solutions with lime, boiling the collected precipitate with a concentrated solution of zinc sulphate, and after filtering the solution, the filtrate is evaporated to dryness and leached with water.

Metallic Alloys.—Prof. William H. Greene and Dr. Wahl have received a patent (490,961) for their process for producing metallic alloys. In brief, a metallic oxide is heated with a silicide of a metal capable of uniting with the reduced metal, in a furnace in the presence of suitable fluxes. A metallic alloy, consisting of pig iron, ferro-manganese, chromium, tungsten, aluminum, nickel, copper, and bar iron, is claimed by Frederick W. Martino (489,314) for the manufacture of tools and other purposes, and Frank G. Stark (490,174) makes an alloy consisting of fifty-six parts copper, forty parts zinc, two parts iron, and one part aluminum. To coat metals (491,220) William Mild dips the metal first in warm dilute sulphuric acid, next rinses in cold water, then immerses in a bath containing 200 pounds hydrochloric acid, two pounds ammonium chloride, ten pounds zinc spelter, and drys. The bath used for finally coating the metal contains the following proportions per ton: 1,300 pounds lead, 700 pounds block tin, half pound bismuth, six ounces sodium, and two pounds of ammonium chloride, and the solution in which the article to be coated is finally dipped contains one pound of ammonium chloride in forty gallons of boiling water. Frank M. Harris amalgamates a metal, and unites the amalgam to an "amalgamable metallic base" and by expelling the mercury thus unites the two metals (489,077). 492,377 is an electrical process for reducing refractory metallic ores. "Production of Artificial Crystalline Carbonaceous Materials" is the high-sounding name given to a method for preparing silicide of carbon, Edward G. Acheson, patentee (492,767); substances containing carbon, silicon, free or combined, and a chloride of an alkali metal are subjected to the electric current.

Electrolysis.—C. J. Theuerner (490,816) subjects silver coated with oxide to an electrolytic bath containing prussiate and cyanide of potash, the oxide-coated silver being suspended as the anode, for the purpose of cleaning the silver. Emile Denorus (491,799) has a novel solution for electroplating, consisting of snail albumen and silver nitrate, in which the article to be coated is first dipped. 489,632 applies to regenerating or cleaning electrolytic solutions by freeing from arsenic by mixing them with metastannic acid, heating until a combination is effected between the arsenic and metastannic acid, and the salt formed is precipitated. The metastannic acid is then recovered (489,633) by dissolving the compound in concentrated hot sulphuric acid, adding an oxidizing agent, and then diluting the mixture until free metastannic acid is precipitated.

Pottery-ware.—William M. Brewer (491,074) burns clay, then grinds it to powder and mixes with it one-third its bulk of raw or unburnt clay, and finally adds glass, sand, flint, slaked lime, and common salt, when it is stored away and tempered for use in making pottery-ware.

NOTES.

Professor Lewis Mills Norton, of the Massachusetts Institute of Technology, and a member of the Council of the American Chemical Society, died April 26, of pneumonia. Professor Norton was born at Athol, Mass., and was educated at the Massachusetts Institute of Technology, where he graduated in 1875. He studied abroad at Giessen, Germany, and returning, was made an Instructor in Sanitary Chemistry and Qualitative Analysis. Soon afterwards he became Assistant Professor of Organic Chemistry, and in 1885 Associate Professor of Industrial Chemistry.

A committee has been organized for the purpose of erecting a monument to Jean Servais Stas and publishing an edition of his works. The American members are Messrs. F. W. Clarke,