

## Abstracts of American Patents Relating to Chemistry.

(From the U. S. Patent Office Gazette.)

(Issued November 3, 1891.)

**462,229.**—Compound of rosin. George E. Armstrong, New York, N. Y.  
A compound of rosin, vegetable oil and a carbonate of an alkali.

**462,245.**—Reduction of aluminium sulphate to sulphide. Philip A. Emanuel, Aiken, S. C.

Aluminium sulphate is subjected to the action of carbon bisulphide in a closed and highly heated retort; or the sulphate is mixed with sulphur and then subjected to the action of carbon bisulphide in a closed and highly heated retort.

**462,277.**—Pulverizing or reducing mill. John A. Peer, Brooklyn, N. Y.

**462,326.**—Apparatus for treating gold and silver ores. Almarin B. Paul, San Francisco, Cal.

**462,366.**—Process for making caustic soda. James Simpson, Liverpool, England.

The process consists in treating calcium phosphate with hydrochloric acid, adding to this solution sodium sulphate, drawing off the liquor and concentrating the same, subjecting the concentrated mass to a red heat and fusing the same, dissolving the fused mass, separating the sodium phosphate and sodium chloride contained in the solution, treating the sodium phosphate with caustic lime, and separating the calcium phosphate and caustic soda resulting.

**462,414.**—Brown dye. Christian Rudolph, Offenbach, Germany.

A brown basic dyestuff derived from chloride of paradioacetanilid, metaphenylene-diamine and concentrated muriatic acid. It consists of a black powder easily soluble in water. The aqueous solution is rapidly discolored by zinc dust and muriatic acid and gives a brown precipitate on the addition of caustic soda.

**462,415.**—Blue black azo dye. Christian Rudolph, Offenbach, Germany.

A blue black tetrazo dyestuff derived from tetrazo diphenyl or ditolyl amido-oxy-alphanaphthaline disulpho acid and alpha or beta naphthylamine. Soluble in water with red violet color, and in concentrated sulphuric acid with a blue color.

**462,449.**—Secondary battery. John H. Palmer, Boston, Mass.

**462,535.**—Amalgamating and extracting gold from refractory or other ores. William Crookes, London, England.

The improvement consists in submitting the ore to the combined action of a solution of a mercurial salt and an alternating electric current.

**462,537.**—Water purifier. Easton Devonshire, London, England.

**462,544.**—Bromine compound. Frank H. Fishedick and Charles E. Koechling, New York, N. Y.

**462,551.**—Ice making and refrigerating apparatus. Frederick B. Hill, London, England.

**462,561.**—Gas generator. Arthur Kitson, Philadelphia, Pa.

**462,567.**—Process of making alkaline carbonate and chlorine. Farnham M. Lyte, London, England.

A process for continuously producing "sodic or potassic carbonate and chlorine, which consists in decomposing sodic or potassic nitrate by heating it with calcic carbonate lixiviating out the sodic carbonate and converting the nitrous fumes evolved into aqueous nitric acid by the action of air or oxygen and water, dissolving plumbic oxide in the nitric acid, precipitating plumbic chloride by means of sodic or potassic chloride, fusing the plumbic chloride and decomposing it electrolytically to form chlorine and metallic lead for use over again."

**462,602.**—Process of purifying iron and steel. Theodore R. Timby, Washington, D. C.

The process for converting or decarburizing and purifying iron consists in introducing mingled jets of animal oil and decomposed or superheated steam into the molten metal.

*(Issued November 10, 1891.)*

**462,678.**—Composition of matter for wall coverings. George W. Abell, Indianapolis, Ind.

Consists of white lead, litharge, sugar, linseed (oil cake) meal, lime, calcined gypsum, sand and water in certain proportions.

**462,693.**—Secondary battery. Nathan H. Edgerton, Philadelphia, Pa.

**462,694.**—Process of purifying tannin solutions by electrolysis. August Foelsing, Dusseldorf, Germany.

**462,730.**—Method of preparing salt for table use. Charles E. Ougley, New York, N. Y.

Damp salt in a powdered or granulated condition is mixed with starch and then exposed to the action of heat for the purpose of softening the starchy granules, and then drying the softened granules upon the salt particles.

**462,824.**—Blue azo dye. Gastav Schultz, Berlin, Germany.

A blue direct dyeing dyestuff obtained by combining one molecule of tetrazo salt substantially such as described with one molecule of alpha-

naphthylamine, again diazotizing the compound and combining with the resultant product two molecules of an alphanaphthiol disulpho acid.

**462,904.**—Refrigerating apparatus. Chas. F. Miller, Lancaster, Pa.

**463,058.**—Centrifugal liquid separator. John Laidlaw, Glasgow, Scotland.

**463,062.**—Apparatus for purifying oil. James J. Lowden, Everett, Boston, Mass.

**463,112.**—Process of recovering tin from tin scrap. Hans C. W. Harmssen, Hamburg, Germany.

**463,120.**—Leaching vat for separating metals from their ores. Donald Dennes, Denver, Col.

*(Issued November 17, 1891.)*

**463,139.**—Process for manufacturing gas. Joseph H. Collins, Philadelphia, Pa.

**463,143.**—Process of and apparatus for preparing aluminium sulphide. Philip A. Emanuel, Aiken, S. C.

A special form of apparatus for reducing aluminium sulphate to sulphide by mixing the sulphate with sulphur, heating the mixture and then treating the residual product with carbon bisulphide.

**463,162.**—Crushing machine. Robert McCulley, Philadelphia, Pa.

**463,305.**—Ore separator. William D. Hoffman, Brewster, N. Y.

**463,326.**—Albuminized paper. Arthur Bott, Albany, N. Y.

An improved albuminized paper which consists in first giving the paper a waterproof facing of barium sulphate and then coating it with albumen.

**463,338.**—Continuous evaporating apparatus. Otto Schulz, Buig, Ger-

**463,367.**—Fumigator. William Martin, Glenwood, Cal.

**463,409.**—Apparatus for directing the proper administration of medicine. Edward P. Roberts, Cleveland, Ohio.

**463,421.**—Process of manufacturing sparkling wines. Wilhelm Gerbel, Rohrsbach, Switzerland.

The method consists "in introducing into a closed vessel a ferment and a portion of the wine mixed with the sugar necessary for the fermentation, then separately introducing over this vinous solution of sugar the remaining body of wine and keeping the two from mixing so far as possible, while allowing the carbonic acid evolved from the vinous solution of sugar to rise into and be diffused throughout the body of the wine, and finally drawing off the sparkling wine."

**463,427.**—Metallic alloy. Thomas MacKellar, Philadelphia, Pa.

An alloy of lead, tin, copper, aluminium and antimony.

**463,429.**—Apparatus for obtaining, separating and disinfecting a fertilizer. Metrophane Nadicin, St. Petersburg, Russia.

- 463,466.**—Evaporating apparatus. Edward Theisen, Sinsig, Germany.  
**463,482.**—Ore concentrator. Edw. W. Clark, Butte City, Mont.  
**463,486.**—Process of welding metal electrically. Charles L. Coffin, Detroit, Mich.  
**463,487.**—Electric welding or working of metals. Charles L. Coffin, Detroit, Mich.  
**463,503.**—Device for charging and discharging enameling ovens. Aug. H. Franck, Sheboygan, Wis.  
**463,509.**—Ore sampling device. Robert C. Hawley, Pueblo, Colo.  
**463,514.**—Separator. John F. Keiper, Denver, Colo.  
**463,538** and **463,539.**—Crushing and pulverizing machines. Rob. McCulley, Philadelphia, Pa.  
**463,564.**—Apparatus for the manufacture of sugar sirups. Joseph I. Wilson, Coldwater, Mass.

*(Issued November 24, 1891.)*

- 463,629.** Hydrocarbon burner. William R. Jeavons, Cleveland, Ohio.  
**463,642.**  
**463,643.**  
**463,644.**  
**463,645.**  
**463,646.** } Methods and apparatus for the manufacture of plate glass.  
cylinders, bottles, etc. Roger S. Pease, Rose, Minn.  
**463,656.**—Churn. Joseph P. Wilson, Glasgow, Ky.  
**463,712.**—Assay furnace. Pierre de P. Ricketts and Edward R. Bush, New York, N. Y.  
**463,731.**—Process of separating cream from milk. John J. Berrigan, Avon, N. Y.

The process of separating the cream from milk consists in "subjecting the milk while tightly confined to an air pressure of one or more atmospheres above the normal for a limited period of time and subsequently reducing the pressure on the milk to the normal before the cream has all risen."

- 463,757.**—Filter. Omar H. Jewell, Chicago, Ill.  
**463,767.**—Process of making chlorine. Prosper DeWilde and Albert Reyckler, Brussels, Belgium.

A process for "producing chlorine by first treating with hydrochloric acid gas a mixture of sulphate of magnesium and manganite of magnesia, and, secondly, treating with heated air the thus obtained mixture of sulphate of magnesium, chloride of magnesium, and chloride of manganese."

- 463,769.**—Explosive and process of making the same. James M. Pollard, Washington, D. C.

An explosive powder composed of finely divided chlorate, nitrate, and sulphur, the particles of each constituent being coated with paraffine.

**463,794.**—Centrifugal separator. Carl G. P. de Loval, Stockholm, Sweden.

**463,799.**—Apparatus for the manufacture of gas. George M. S. Wilson, Toronto, Canada.

**463,800.**—Churn. John H. Brownfield, Moberly, Mo.

**463,823.**—Pulp beater and refining machine. Sharon D. Beach, Seymour, Conn.

**463,841.**—Manufacture of chromates and bichromates. Jules Massignon and Etienne Watel, Paris, France.

Chrome mineral is pulverized, mixed with calcium carbonate and calcium chloride; the mixture then heated to cause the carbonate to be converted into caustic lime and subsequently oxidized. The calcium chloride is then washed out and subsequently the calcium chromate finally precipitated by a lead salt to form lead chromate.

**463,846.**—Apparatus for washing, dyeing and treating textile materials. Ely Sutcliffe and George E. Sutcliffe, Winfield, Eng.

**463,853.** } —Apparatus for burning hydrocarbons. James H. Bullard,

**463,854.** } Springfield, Mass.

**463,870.**—Calcium light apparatus. George R. Prowse, Montreal, Canada.

**463,875.**—Process of removing free hydrochloric acid from sulphochlorides. Adolph Sommer, Berkeley, Cal.

Air, deprived of its moisture, is passed through the sulpho-chlorides.

**463,898.**—Blue dye, Albert Hermann, Höchst-on-the-Main, Ger. The sulphonic acids of metaoxy, meta-amido, or alkylized meta-amidotetralkyldiamido-triphenyl carbinols are oxidized with salts of oxide of iron or chromic acid. A copper red powder with metallic lustre, sol. in water, showing intense indigo-blue coloration, insol. in alcohol and benzine, dyeing wool and silk in acid bath in blue shades.

**463,965.**—Process and apparatus for generating gas. William H. Harris, Boston, Mass.

*(Issued December 1, 1891.)*

**464,008.**—Furnace. Thomas E. Caddy, Nottingham, Eng.

**464,020.**—Apparatus for distributing liquids. August Hamelberg, Santo Domingo, S. Domingo.

Apparatus for beer. John Hartin, Boston, Mass.

**464,040.**—Apparatus for generating gas. Adolph Richter, New York, N. Y.

**464,056.**—Process of educing and degumming fibrous material. George E. Armstrong, New York, N. Y.

The disintegrated fibers are treated with a highly resinous saponaceous solution.

**464,083.**—Ore crusher. George Raymond and Albert Raymond, Chicago, Ill.

**464,092.**—Process of destroying Canada thistles. William Burton, Plymouth, Wis.

The thistles are treated with a mixture consisting of naphtha and naphthaline.

**464,096.**—Apparatus for obtaining metal of the alkalis from molten chloride. Ludwig Graban, Hanover, Ger.

**464,097.**—Process of obtaining metallic sodium. Ludwig Graban, Hanover, Ger.

The process of obtaining sodium from its chloride by "combining sodium chloride with another chloride of the metals of the alkalis and with a chloride or chlorides of the metals of the alkaline earths, in the proportion of one molecule of the latter to three molecules of the chlorides of the metals of the alkalis, melting the trisalt and separating the sodium by electrolysis."

**464,103.**—Furnace for wasting ores. Francis O'Brien, Elizabeth, N. J.

**464,104.**—Apparatus for making solutions of bisulphites. Frank J. Peck and James A. Onterson, Dexter, N. Y.

**464,116.**—Plastering compound. William M. Dawson, St. Louis, Mo.

A composition of matter, consisting of glue, linseed meal and chalk on air slacked lime.

**464,120.**—Manufacture of artificial stone. Ludwig Grote, Dresden, Ger.

The process consists in "steeping cellulose in oxide of copper ammonia, freeing the mixture obtained from superfluous liquid, mixing a filling material consisting of magnesium chloride, zinc chloride and magnesite, with the mass and moulding the latter into suitable shapes."

**464,135.**—Blue dye. Meinhard Hoffmann, Frankfort-on-the-Main, Germany.

Blue coloring matters produced by mixing solutions of amidonaphthol-disulpho acid and the tetrazo derivatives of paradiamines and sufficient alkali to keep the solution alkaline. A dark bronze-like powder, easily sol. in water, with a blue color which is not changed by addition of carbonate of soda; insol. in alcohol and ether, sol. in strong sulphuric acid with pure blue shade. The latter solution diluted with water, precipitates the dyestuff in the form of a reddish blue amorphous precipitate.

**464,147.**—Alloy. Alex. W. Cadman, Edgewoodville, Pa.

An anti-friction alloy, composed of antimony, tin, copper and aluminium.

**464,166.**—Evaporating apparatus. William Venuleth, Darmstadt, Ger.

**464,171.**—Furnace for the incineration and destruction of house garbage, etc. Edw. W. Cracknell, Sydney, South Wales.

**464,197.**—Dry air closet. Oscar A. Lanphear, Cincinnati, Ohio.

**464,199.**—Digester for treating paper stock. John MacCormack and Harry L. Van Zile, Albany, N. Y.

**464,236.**—Cluurn. George P. Withorn, Emporia, Kans.

**464,336.**—Paint. Wells H. Shearer, Arkansas City, Kans.

A waterproof paint consisting of coal tar, pitch, common mineral paint, hydraulic cement, gray ochre, asbestos, air slacked lime, salt, liquid drier and litharge.

**464,351.**—Process of and apparatus for manufacturing copper tubes. Alexander S. Elmore, Leeds, Eng.

**464,367.**—Insulating composition. Smith W. Kimble, Denver, Col.

The composition consists of pulverized mica, silicate of soda, and a mineral substance such as talc free from lime, combined and moulded under pressure.

**464,369.**—Composition of matter for insulating purposes. Smith W. Kimble, Denver, Col.

Composition composed of pulverized mica, silicate of soda, sulphur or sulphur compounds, and another mineral substance such as finely divided asbestos, and molded under high pressure without heat.

**464,389.**—Vacuum evaporating apparatus. Sigismund Pick, Szezakowa, Austria, Hungary.

**464,395.**—Method of making alloys. Samuel Singley, New York, N. Y.

“The mode of manufacturing anti-friction alloys, which consists in adding sal-ammoniac to molten lead, agitating the mass and removing the scum, adding a proportionate quantity of antimony, and covering the mass with powdered graphite and then agitating the mass.”

**464,419.**—Fumigator. Stephen P. Bozarth, Wimberly, Tex.

**464,423.**—Process of tanning and dressing leather. Daniel W. Brown, Isaac Clark and James F. Brown, South Fork, Mo.

**464,463.**—Crushing and pulverizing machine. Robert McCully, Philadelphia, Pa.

**464,474.**—Feed water purifier. Michael Egan and Calvin G. Udell, North Indianapolis, Ind.

*(Issued December 8, 1891.)*

**464,509.**—Chemical eraser. Clarence R. Maconber and Ernest V. Scribner, Worcester, Mass.

**464,515.**—Process of manufacturing hydraulic cement. José F. Navarro, New York, N. Y.

“Process of manufacturing Portland cement, which consists in first burning the raw unground rock in a vertical stationary kiln, next pulverizing the burned product, then adding any required additional element, then vitrifying or calcining the pulverized material in a rotating horizontal kiln, and finally pulverizing the product.”

**464,516.**—Process of manufacturing Portland cement. José F. Navarro, New York, N. Y.

To pulverized dry argillaceous rock containing the chemical constituents of Portland cement are added, when deficient in lime, a definite proportion of cement rock high in lime or limestone pure, also ground raw. After thoroughly mixing the dry powders they are burned in a rotating kiln, and finally grinding the resulting clinkers to a powder.

**464,538.**—Violet dye. Arthur Winberg, Frankfort-on-the-Main, Germany.

Solutions of the substituted diamidodiphenylmethanes are mixed with solutions of aromatic monomines, and then oxidizing substances are added to the mixture. A violet coloring matter, tetralkyldisulphobenzyl-diamidotriphenylcarbinol, forming a bronze-like powder easily solvent in water with violet color, which is not changed by dilute alkali, less sol. in alcohol, insol. in ether. Strong sulphuric acid dissolves it with a yellow orange shade. The latter solution when diluted retains the dye-stuff dissolved with a green shade.

**464,543.**—Pocket apparatus for determining the amount of carbonic acid in mixtures of gases. Heinrich Wolpert, Nuremberg, Ger.

“A pocket apparatus for testing carbonic acid in mixtures of gases, consisting of a cylinder provided with a scale indicating the amount of the air at different elevations, and a scale having marks indicating the quality of the gas or air, a piston in said cylinder, and a tube connected with said piston.”

**464,566.**—Violet dye. Meinhard Hoffman, Meinken, Ger.

A new coloring matter  $C_{10}H_4(SO_3Na)_2 = [N=N-C_{10}H_4NH_2(a)]_2$  produced by the action of tetrazonaphthaline beta-disulphonic acid upon alpha-naphthylamine. Easily sol. in hot water with violet color in conc. sulphuric acid with a blackish-blue color, and by reducing agents it is decomposed into diamidonaphthaline beta-disulphonic acid and naphthylinediamine.

**464,642.**—Disintegrating furnace. Frank Walker, Los Angeles, Cal.

**464,669.**—Apparatus for purifying water. William Anderson, Erith, County of Kent, Eng.

**464,672.**—Apparatus for separating gold and silver from ore. William D. Bohn, London, Eng.

**464,695.**—Apparatus for heating with fluid fuel. William A. Kone-man, Chicago, Ill.

*(Issued December 8, 1891.)*

**464,700.**—Apparatus for manufacturing fuel gas. William A. Koneman, Chicago, Ill.

**464,717.**—Hydrocarbon burner. Henry Ruppel, Cleveland, Ohio.

**464,719.**—Incandescent lamp filament. Ludwig K. Böhm, New York, N. Y.

Carbonizable material is impregnated with carbonates of calcium or magnesium, and then carbonized, producing a filament of carbon and oxide of calcium or magnesium.

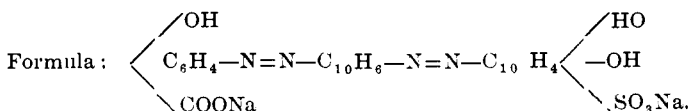


**464,747.**—Retort for making bisulphide of carbon. Joseph Beck, Newark, N. J.

**464,775.**—Blue green azo dye. Richard Lauch and Karl Krekeler, Elberfeld, Germany.

A bluish black powder, difficultly sol. in cold water, more easily sol. in hot water with blue violet color, readily sol. in alkaline solution with almost pure blue color, sol. in conc. sulphuric acid with dark green color, which is altered by addition of water to a pure blue, the dyestuff gradually separating in dark blue flakes. Wool, mordanted with chromium salts, is dyed in bluish green shades very fast against sunlight, soap and milling.

The dyestuff is produced by combining one molecular proportion of the diazo compound of amidonaphthaline azo-salicylic acid with one molecular proportion of dihydroxynaphthaline monosulphonic acid in the presence of sodium acetate.



**464,779.**—Apparatus and method of making fuel gas. Edw. P. Reichelm, Jersey City, N. J.

**464,782.**—Machine for cleaning vegetable fibre. Manuel Villanor, Meriden, Mex.

**464,800.**—Hemp cleaning machine. William H. Muggeridge, Bellevue, Ky.

**464,815.**—Compound for preparing iron ore for furnace use. Gurdon Conkling, Glen Falls, N. Y.

Compound consists of comminuted iron ore, magnesium chloride, magnesium oxide, calcium oxide, sodium silicate and water.

**464,816.**—Ore separator. Wm. G. Conkling, Glen Falls, N. Y.

**464,850.**—Hydrocarbon burner. Joseph Burns, Fort Plain, N. Y.

**464,861.**—Process of making phenylethylmethylpyrazolone. Gustav Ebert, Höckst-on-the-Main, Germany.

“The process of making phenylethylmethylpyrazolone by heating phenylmethylpyrazolone with iodethyl, then driving off the excess of iodethyl, taking up the free iodine by sulphurous acid, and decomposing the product of the reaction by soda lye; now taking up the oil by benzine, treating with hydrochloric acid, dissolving the hydrochlorate in alcohol, and pouring it into ether, filtering and drying the product, dissolving it again in water, adding soda lye, taking up the oil in benzine, distilling off the latter, and drying the oil remaining back in an exsiccator or by an air pump. Phenylethylmethylpyrazolone is very sol. in water, al-

cohol, benzine, ether and chloroform, insol. or scarcely sol. in ligroine, deliquescent on being left exposed to the air, melting at  $71^{\circ}$  and  $72\frac{1}{2}^{\circ}$  C., having a formula, by analysis, of  $C_{12}H_{14}N_2O$ , forming with sodium nitrite and acetic acid a green, scarcely soluble nitroso compound, and with ferric chloride a red double salt, containing three molecules of the base and two molecules of  $FeCl_3$ ."

**464,917.**—Manufacture of Venetian red. Walter J. Wigg, Frodsham, Kingston-upon-Hull, England.

"The process of producing Venetian red, which consists in treating a proper solution of iron and of a body-producing substance with milk of lime or equivalent reagent, agitating and oxidizing the mixture by blowing air or other oxidizing gas or agent through it, further oxidizing and cleansing the precipitate by steam and water, and then furnacing the precipitate."

**464,920.**—Process of manufacturing cast steel. Lewis Cameron, Pittsburg, Pa.

**464,922.**—Dental vulcanizer. Thomas J. Carrick, Baltimore, Md.

**464,933.**—Process of obtaining metals from their ores or compounds by electrolysis. Charles S. Bradley, Yonkers, N. Y.

**464,934.**—Furnace for the manufacture of gas. Jesse A. Dubbs, Alleghany, Pa.

*(Issued December 15, 1891.)*

**464,963.**—Apparatus for producing gas. Abraham A. Fritz, Brussels, Belgium.

**465,006.**—Cupola furnace. John Walker, Cleveland, Ohio.

**465,031.**—Process of extracting oil. Ernest G. Scott, Port Sunlight, England.

Uses carbon tetrachloride as a solvent for the oils.

**465,077.**—Apparatus for manufacturing heating and illuminating gas. James S. Rogers, Rockport, Mass.

**465,085.**—Apparatus for manufacturing gas. James S. Rogers and James H. Baker, Saratoga Springs, N. Y.

**465,116.**—Brown azo dye. Christian Rudolph, Offenbach-on-the-Main, Germany.

Diazotized toluylenediamine sulpho-acid 1 : 2 : 4 : 6 ( $CH_3$  :  $NH_2$  :  $SO_3H$  :  $NH_2$ ) is first combined with two molecules of metaphenylenediamine and the intermediate product further treated with diazotized alpha or beta naphthylamine sulpho-acid. The dyestuff is a blackish powder with a greenish hue, sol. in conc. sulphuric acid with a brown, violet, red color and in water with a brown color.

**465,146.**—Apparatus for the manufacture of gas. Augustin Seguin, Lyons, France.

**465,178.**—Photographic process for printing in colors. Johann C. Hösch, Vienna, Austria-Hungary.

**465,249.**—Fuel produced from lignite. Albert Edelmann, Austin, Texas.

**465,250.**—Process of extracting copper pyrites. Thomas A. Edison, Llewellyn Park, N. J.

The method consists "in first concentrating the whole by running or otherwise separating the naturally magnetic material magnetically, then heating the remainder to a temperature sufficient to render the chalcopyrite magnetic and insufficient to render the iron pyrites magnetic, separating the magnetic chalcopyrite magnetically. Then reheating the remainder to a much higher temperature to render the iron pyrites magnetic and separating the same magnetically, leaving the gold, silver, lead, etc., as a final non magnetic residue."

**465,280.**—Method of making nitro-cellulose. Hudson Maxim, New York, N. Y.

The process "consists in immersing the material to be nitrated successively in two baths each containing a large excess of mixed nitric and sulphuric acid, in the first and stronger bath of which the cellulose is placed until partially converted into a lower nitro compound, and in the second and weaker of which bath the completion of the conversion into a higher nitro compound takes place, and the acids mixture in the second or last bath being maintained at a suitable working strength by the stronger acids of the first bath adhering to the cellulose material."

**465,314.**—Process of manufacturing steel. William J. Bell, Philadelphia, Pa.

**465,321.**—Apparatus for determining the amount of water in steam. Max Gehre, Roth, Germany.

**465,330.**—Process of manufacturing cement. Calvin Tompkins, New York, N. Y.

Highly heated slag as it comes from the furnace and before it has been allowed to cool, is treated to a bath of hydrate of lime, dried and then pulverized.

**465,349.**—Magnetic ore separator. Clinton M. Ball, Troy, N. Y.

**465,369.**—Production of insulating coatings or linings in electrolytic apparatus. Ludwig Graban, Hanover, Germany.

**465,393.**—Sterilizing apparatus. Marcell von Skotnicki, Charlottenburg, Germany.

**465,398.**—Hydrocarbon vaporiser and burner. Richard Thompson, London, Canada.

*(Issued December 22, 1891.)*

**465,461.**— { Machine for enameling sheet metal.

**465,462.**— { Machine for brushing enamel, etc.

Hubert Claus, Thale-on-the-Harz, Germany.

**465,474.**—Treatment of spent soap lye. Otto C. Hegenmann, London, England, and Ebenezer K. Mitting, Chicago, Ill.

**465,525.**—Electrolytic apparatus for treating metals. Edward S. Hayden, Waterbury, Conn.

**465,572.**—Method and apparatus for producing railway ballast from furnace slag. John W. Diebold, Pittsburg, Pa.

**465,582.**—Separating machine. John G. Mundy, Jackson, Mich.

**465,600.**—Process of recovering cyanides from coal gas. William L. Rowland, Philadelphia, Pa.

“The process consists in adding a portion of iron salt to the liquor, boiling off the ammonia in the usual manner, and treating the settings with lime to obtain a solution of ferrocyanide of calcium; second, adding an alkaline chloride or sulphate to this solution to form the double salt, the ferrocyanide of calcium and the alkali, and finally decomposing this with an alkaline carbonate to form an alkaline ferrocyanide.”

**465,607.**—Manufacture of hydrofluosilicic acid. Marc W. Beylikgy, New York, N. Y.

Ferrous sulphate is first mixed with the equivalent proportion of fine fluor spar, “next heating the said mixture to incipient redness in a close vessel, and causing steam to pass over it to decompose it and produce fluorhydric acid charged with vapor of water and finally passing the said acid condensed with water through silica.”

**465,614.**—Compound to restrain the setting of plaster and process of making the same, a composition of quicklime, glue and flour.

**465,646.**—Furnace. John Haggerty, New York, N. Y.

**465,654.**—Combined chlorinating and filtering vessel. Donald Dennes, Deadwood, S. D.

**465,667.**—Crushing and grinding mill. George C. Janney, Springfield, Ohio.

**465,668.**—Vaporizer for hydrocarbon or similar fluids. Wm. J. Kenderdine, Philadelphia, Pa.

**465,672.**—Process of making steel. Gustav Lindenthal, Pittsburg, Pa.

**465,703.**—Process of refining petroleum and analagous oils. Chas. C. Mengel, Sr., Bay City, Mich.

The vaporized oils are treated under pressure with carbonic acid gas.

**465,717.** } Compositions for covering steam pipes, etc. Robt. S Miller,

**465,718.** } Wilmington, Del.

**465,735.**—Dental vulcanizing apparatus. George B. Snow, Buffalo, N. Y.

**465,746.**—Hydrocarbon burner. Wm. H. Ames, Easton, Mass.

**465,784.**—Process of polishing sheets of pyroxyline material. Wm. Schmidt, Arlington, N. J.

**465,796.**—Carbonic acid generator. Jacob F. Wittenmann, New York, N. Y.

**465,817.**—Petroleum burner. Louis Godder, Winchester, Mass.

**465,822.**—Process of and apparatus for purifying oil. James J. Lowden, Everett, Mass.

*(Issued December 29, 1891.)*

**465,828.**—Compound for carburizing metals. Samuel H. Brown, Boston, Mass.

The compound is composed of "bone-carbon, tungstic acid, calcined lime, soda-ash, and sal-ammoniac."

**465,833.**—Method of ornamenting iron tablets. Joseph Cavalli, London, Eng.

**465,860.**—Ink. Thomas W. Just, Robert Weiler, and Otto Heidepriem, Melbourne, Victoria.

Consists of carbon black, caustic soda, oxalic acid, india ink, vanadium, aleppo galls, nutgalls, gum arabic, aniline dye, with sufficient water to make a freely flowing ink.

**465,871.**—Apparatus for dyeing wool. Samuel Mason, Jr., Manchester, England.

**465,872.**—Process of treating metalliferous ores. Francis H. Molesworth, Adelaide, South Australia.

**465,923.**—Baker's oven. Fritz Dührkop, New York, N. Y.

**465,944.**—Hydrocarbon burner. Edwin G. Murmuery, Detroit Mich.

**465,975.**—Method of vulcanizing and drying wood. Charles Howard, New York, N. Y.

**465,976.**—Soda water apparatus. John Ormesrod, Brooklyn, N. Y.

**465,979.**—Ore concentrating machine. George E. Woodbury, San Francisco, Cal.

**466,045.**—Apparatus for deoxidizing, melting, and puddling iron ores. Henry A. Jones, Brooklyn, N. Y.

**466,047.**—Apparatus for cooling beer. Raymond S. Roswald, New York, N. Y.

**466,138.**—Secondary battery plate. Henry G. Morris and Pedro G. Saloni, Philadelphia, Pa.

A compound of sulphide and oxide of lead.

**466,151.**—Process of manufacturing beer and ale. Andrew W. Billings, Brooklyn, N. Y.

"The improvement consists in making a mash by mixing together raw grain and water and a portion of malt, gradually raising the temperature of this mash to the neighborhood of 146° Fahr., then rapidly heating it to between 180° and 212° Fahr., maintaining it at this temperature for a sufficient length of time to disintegrate the outer cuticle and dissolve the starch cells without the formation of empyreumatic products, then cooling it rapidly to below 165° Fhr., then adding the remaining portion of

malt required for the brew, maintaining it meanwhile at a temperature of over 155°, the wort being subsequently filtered out and subjected to further operation as in ordinary brewing."

**466,152.**—Percolator. Henry S. Blackmore, Mount Vernon, N. Y.

**466,162.**—Grinding and amalgamating mill for gold or silver ores. George Fraser, Auckland, New Zealand.

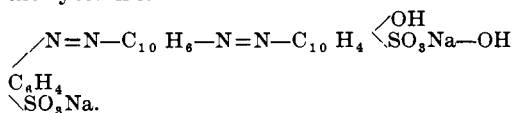
**466,175.** } Hydraulic presses. Lewis Miller, Philadelphia, Pa.

**466,176.** }

**466,177.**—Galvanic battery. Samuel Miller, Buxton, Eng.

**466,202.**—Black azo dye. Moritz Ulrich, Elberfeld, Germany.

The dyestuff is slightly sol. in cold water, readily sol. in hot water with deep violet color, also in hot solution of sod. carb. with the same color; by hot soda-lye and by ammonia sol. with intensely blue color; in conc. sulphuric acid with deep green color; which solution on addition of cold water gradually changes to greenish blue, blue, blue violet, and at last separates violet flakes leaving the supernatant liquid colorless. The formula for the dyestuff is



**466,210.**—Apparatus for the manufacture of salt. Reginald C. Wilson, Liverpool, Eng.

**466,223.**—Dyeing apparatus. César Corron. Paris, France.

**466,265.**—Process of and apparatus for making charcoal. Leopold Zwillingger, Vienna, Austria-Hungary.

J. F. G.