Abstracts of American Patents Relating to Chemistry.

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

Issued May 27, 1890.

428,587.—Hydrocarbon burner. R. B. Avery and R. F. Smith.

428,589.—Diffusion apparatus. L. Boyer.

428,610.—Lubricant. S. Hopkins, Jr.

Consists of rod wax, lard and castor oil.

428,614.—Dyeing apparatus. C. L. Klauder.

428,629.—Substantive yellow dye. W. Pfitzinger.

Prepared by combining the diazo compounds of the thio derivatives of paratoluidine, metaxylidine, and pseudo cumidine or those of their sulpho-acids with the sulpho-acids of the thio derivatives of paratoluidine, metaxylidine and pseudo cumidine.

428,638.—Air pump. H. Schulze-Berge.

428,654.—Process of manufacturing thin sheets of nitrocellulose. E. N. Todd.

428,659.—Process of melting the ores of copper or other metals. C. Wessell.

The broken ore is mixed with potassium carbonate, sodium chloride, sodium nitrate and boric acid, and heated to the melting point.

428,687.—Composition for converting malleable cast iron into steel. W. J. Miles, Jr.

Consists of potassium ferrocyanide, potassium cyanide and potassium carbonate.

428,747.—Bottom for reducing furnaces. C. J. Eames.

Consists of dolomite, carbon, fluorspar, fire clay, fire sand and sufficient of a weak solution of sodium silicate to form a plastic mass.

428,830.—Apparatus for oxidizing or desulphurizing ores. E. M. Clark.

428,834.—Method of welding aluminium. M. Emme.

428,955.—Apparatus for the manufacture of gas. J. M. Rose.

428,956.—Apparatus for the manufacture of gas. J. M. Rose.

429,054.—Combined red pigment and paint base. J. P. Perkins.

Consists of an intimate mixture of ferric oxide and separated or precipitated silica.

429,055.—Process of treating slag for the production of red pigments J. P. Perkins.

Silicious ferruginous slag is pulverized, treated with sulphuric acid and heated.

429,056.—Process of treating slag for the production of red pigments. J. P. Perkins.

Pulverized silicious ferruginous slag is heated with access of air, treated with sulphuric acid, and again heated.

429,097.—Process of manufacturing and bleaching pulp. C. Ramsey.

Issued June 3d, 1890.

429,112.—Filter. J. A. Bowden.

429,117.—Paving compound. D. C. Cregier.

Consists of coal tar, asphalt, metallic ore, sal-ammoniac, cement and lime.

429,124.—Apparatus for manufacturing malt. C. Fey.

429,131.—Process of printing calico. J. J. Hart.

The process consists, first in subjecting the fabric containing the lake or fixed color to a solution of developing reagent at a temperature below the point necessary to effect the chemical reaction between the lake or fixed color and the developing reagent, and then exposing the fabric containing the fixed color or lake and developing reagent to the action of heat to effect the chemical reaction.

429,157.—Antifriction alloy. S. Singley.

Consists of lead, antimony, tin, bismuth and silver.

429,158.—Antifriction alloy. S. Singley.

Consists of lead, antimony, tin, bismuth and aluminium.

429,161.—Washing compound. C. E. Starr.

Consists of oil of citronella, oleine laundry soap, alcohol, mineral oil, and water.

429,225.—Process of treating slag. St. G. T. C. Bryan.

429,226.—Method of treating slag. St. G. T. C. Bryan.

429,248.—Antifriction composition. S. Singley.

Consists of lead, antimony, tin, bismuth and graphite.

429,249.—Antifriction alloy. S. Singley.

Consists of lead, from 200–400 parts; antimony, 40–80 parts; tin, 15–30 parts, and bismuth, $\frac{5}{8}$–$1\frac{1}{4}$ parts.

429,271.—Apparatus for measuring and carbureting air or gas. F. H. Hambleton.

429,309.—Apparatus for the manufacture of gas. M. S. Greenough, E. C. Jones and W. R. Addicks.

429,313.—Gas meter. B. P. Moors.

429,340.—Oil filtering apparatus. J. Dooner.

429,350.—Red dye. G. Keorner.

The diazo dye stuff which results from the combination of two molecules of naphthionic acid with one molecule of the texrazo-derivative obtained by the action of nitrous acid on orthometatolidine, and which is

characterized by the following properties: it is a reddish brown powder easily soluble in hot water, slightly less soluble in cold, soluble in alcohol with a more yellowish color than in water, insoluble in benzine; an aqueous solution (one one thousandth) upon treatment with an equal volume of acetic acid (thirty per cent.) yields a purple solution, and after standing a precipitate of the same color; hydrochloric acid (twenty-five per cent.) gives at once a blue precipitate from the same solution, and the dye stuff dyes cotton in the alkaline bath without a mordant a brilliant red color, with a slight yellow shade.

429,386.—Process of separating metallic impurities from graphite. M. W. Parrish.

429,398.—Regenerative gas burner. C. Westphal.

429,414.—Hydrocarbon burner. H. C. Brill.

429,417.—Appartus for recovering soda. H. Burgess.

429,423.—Gas meter. J. W. Culmer.

429,424.—Gas meter. J. W. Culmer.

429,426.—Carbureting apparatus. W. Dawson.

429,435.—Detergent. J. J. Gilbert.

A compound for cleaning marble, etc., consisting of a mixture of muriatic acid, borax, soapstone, alum and sal-ammoniac.

429,459.—Apparatus for decolorizing, filtering, etc., liquids. B. Lavigne.

429,482.—Bottle stopper. W. L. Roorbach and G. W. Tucker.

429,516.—Manufacture of gunpowder. R. v. Freeden.

Gelatinized nitrocellulose, still containing the solvents, is stirred in water or steam, or both, until it is divided into grains. The grains are then removed and dried, and may be finished in the usual manner.

429,522.—Process of manufacturing sulphate of lead pigment. J. B. Hannay.

The process consists of the following successive operations: first, volatilizing suitable lead ore containing sulphur, and at the same time producing combustible gas mingled with the fumes of the mineral; secondly, admitting air to a combustion chamber, so as to effect combustion of the gases, and thereby reheating and oxidizing the fumes; thirdly, forcibly injecting the gaseous products and oxidized fumes through water or acidulated water in a condenser in which the sulphate of lead is deposited, and finally washing and drying the sulphate produced.

429,523.—Apparatus for the manufacture of sulphate of lead pigment. J. B. Hannay.

Issued June 10th, 1890.

429,638.—Process of manufacturing iron and steel. J. Reese.

The process consists in first decarburizing the metal while in a molten condition by subjecting it to the action of an oxidizing agent, and then

treating the decarburized metal with a calcareous agent and oxide of iron while maintained at a temperature above the fusion point of wrought iron.

429,647.—Process of disintegrating fibrous substances. G. M. Rose.

The crushed material is subjected to the action of a solution containing equal parts by weight of calcium oxychloride, potassium hydroxide, ammonium carbonate, and magnesium sulphate, at a temperature of 200° F.

429,659.—Enamel for coating bricks. J. Stiel.

Consists of a mixture of gravel, silicic acid, phosphorite, or analogous minerals, sodium carbonate, potash, cryolite, fluor spar, apatite, and metallic oxides for suitable coloring.

429,675.—Apparatus for generating oil gas. M. C. Burt.

429,682.—Appartus for treating charcoal. R. V. F. de Guinon.

429,692.—Digestor. F. C. Lovejoy.

429,744.—Process of manufacturing iron or steel. A. J. Severance.

The process consists in adding to the metal while in a molten state a compound of borax, ammonium chloride, spathic iron and pumice, or their equivalents.

429,777.—Welding compound. A. J. Severance.

Consists of borax, pumice stone, salt, ammonium chloride, dolomite and spathic iron ore.

429,791.—Renovating fabrics. A. Mautner.

A cloth restoring composition for plush, velvet or other textile fabrics, composed of a solution of casein, ammonia, tartaric acid, alum, soap, gelatin, and an aniline or other dye.

429,826.—Apparatus for aging wines. L. Wagoner.

429,892.—Process of preventing the oxidation and deoxidation of copper when heated. G. W. Cumnins.

The copper is heated in the presence of steam.

430,055.—Vulcanizing wood. W. C. Andrews.

Process consists in first placing the wood in a closed receptacle under high pressure of an aeriform fluid at ordinary temperature or without heat sufficient to boil the sap, and then, while retaining pressure, highly heating the contents.

Issued June 17th, 1890.

430,120.—Apparatus for filtering wine. H. B. Fischer and C. H. Fischer.

430,127.—Apparatus for carbonizing vegetable fibres. J. Illingworth.

430,182.—Method of preserving coffee, etc. P. Gassen.

The coffee, etc., is coated with shellac, wax or rosin, or mixtures of these.

430,198.—Apparatus for making chlorine. E. Solvay.

430,199.—Process of recarbonizing steel. A. Spannagel and F. Springorum.

A regulated stream of carbonaceous material is caused to mix with a stream of the molten metal from the ladle before its entrance into the ingot mold.

430,212.—Manufacture of explosives. H. S. Maxim.

The process consists in confining fibrous gun cotton in a receiver, exhausting the air from the same, then introducing vaporized acetone or its equivalent into the exhausted receiver and dissolving the gun cotton and then expelling the dissolved gun cotton by pressure from the receiver.

430,213.—Carburetor. H. Maxim.

430,214.—Recovering solvents from explosives. H. Maxim.

430,250.—Water color paint. G. S. Hodges and J. M. Tracy.

Consists of finely powdered water colors mixed with alcohol, Russian isinglass, gum arabic and glucose.

430,379.—Apparatus for the solution of gold, etc. S. H. Emmens.

430,387.—Apparatus for ozonizing air. J. C. Kennedy.

430,393.—Insecticide and method of making the same. J. M. A. Miller and P. McMaster.

The process of reducing sulphur to solution and of retaining it in solution, which consists in first adding to sulphur in a pulverized condition a solution of sodium chloride and potassium nitrate in water and thoroughly mixing the whole, then allowing the mass to stand until the sulphur is fairly or fully charged with the soda and potassa, then adding caustic soda to the mixture and agitating the mass, and subsequently allowing the whole to stand and cool.

430,468.—Regenerative gas lamp. F. W. Clark.

430,508.—Refractory compound for incandescent gas burners. J. E. Blomen.

Consists of an organic acid and magnesium salts, a mixture of magnesite and grape pomace or other suitable organic material, and magnesium oxide.

430,516.—Process of producing paper pulp from tobacco. H. Endemann.

The process consists in crushing the tobacco, steeping or boiling the crushed tobacco in water, treating the fibrous residue with a solution of aluminium sulphate under heat and pressure, then treating it with an alkaline substance.

430,533.—Process of preparing diazo dyes. C. L. Müller.

The process consists in coupling together the molecules of certain amido-azo compounds by twos, by means of intermediaries, such as phosgene and thiophosgene or carbon bisulphide, in the presence of alkalies and alcohol, and the said amidoazo bodies are paramido-benzene-azo

bodies of the constitution represented by the formula $NH_2 . C_6 H_4 : N : R$, in which the second element (the residue of which is denoted by R in the above formula) is a phenol, phenol-carboxylic acid or phenol-sulphonic acid, or an amido-sulphonic acid of the aromatic series, capable of combining with diazo compounds and forming azo bodies.

430,534.—Red to brown dye. C. L. Müller.

A pink to orange brown dye stuff, which is a sodium salt of an acid, which has the chemical constitution represented by the formula :

$$CO\begin{cases} N<{}^{H}_{C_6 H_4}—N:N—C_{10} H_5 (NH_2) SO_3 H. \\ N<{}^{C_6 H_4—N:N—C_{10} H_5 (NH_2) SO_3 H}_{10} \end{cases}$$

and which may be regarded as a disazo derivative of symmetrical diamido-diphenylurea, and is characterized by the following properties : It is a brownish red powder, soluble in water, alcohol and sulphuric acid, the aqueous and alcoholic solutions being of an orange red color ; from the former, hydrochloric acid throws down a dark bluish purple precipitate, whereas caustic soda produces no change ; the sulphuric acid solution is purple red in color, and water throws down from it a purple blue precipitate ; it dyes unmordanted cotton from the alkaline or soap both new shades, varying from flesh color to orange brown, according to the proportion of dye stuff used.

430,535.—Yellow dye. C. L. Müller.

It is chemically a sodium salt of an acid, the constitution of which is represented by the formula :

$$CO\begin{cases} N<{}^{H}_{C_6 H_4}—N:N—C_6 H_3 (OH) COOH \\ N<{}^{C_6 H_4—N:N—C_6 H_3 (OH) COOH}_{H} \end{cases}$$

and which is to be regarded as a disazo derivative of symmetrical diamido-diphenylurea, and is characterized by the following properties : It is a dull yellow powder soluble in water, alcohol and sulphuric acid, the aqueous and alcoholic solutions being of a yellow color ; from the former hydrochloric acid throws down a dark red brown precipitate, while caustic soda solution turns it an orange yellow color ; the sulphuric acid solution is orange red in color, and water throws down from it a brown precipitate, and the dye stuff dyes unmordanted cotton in the boiling alkaline or soap bath a pure yellow color.

430,536.—Process of making butter. D. McGregory.

Consists in removing from yelk of egg the inclosing membrane and tread, agitating or heating the same with fresh milk, and incorporating the mixture with dairy butter until a homogeneous mass is obtained.

430,595.—Apparatus for making paper stock. J. D. Tompkins.

Issued June 24th, 1890.

430,653.—Process of producing plumbates of the alkaline earths. G. Kassner.

Consists in roasting in free air a mixture of lead oxide and the carbonate, hydroxide, or oxide of an alkaline earth. The lead oxide may be replaced by such salts of lead as are reduced to oxides by heat.

430,723.—Regenerative gas lamp. B. Zeitschel.

430,725.—Disinfectant. H. M. Baker.

A slowly dissolving double salt resulting from the combination of alkaline permanganates and silicates.

430,734.—Process of making alkaline carbonates and acetone.

The acetate of the alkaline earth is treated with the sulphate of an alkali, and the resulting alkaline acetate is subjected to distillation.

430,807.—Apparatus for the manufacture of gas. J. A. McCollum and B. F. Burt.

430,812.—Lubricant. J. J. Stock.

Consists of pulverized talc, beef tallow, paraffin oil, potash lye, vermilion red, and oil of myrbane.

430,850.—Cleansing compound. S. V. Harbaugh.

A combination of coal ashes which have been sifted and desiccated with a due proportion of water, salts of tartar, chloride of lime, and carbonate of ammonia.

430,925.—Apparatus for dyeing. C. Corron.

430,958.—*Vulcanized plastic compound.* W. Kiel.

Consists of crude rubber, sulphur, and mineral oil.

430,959.—Process of manufacturing vulcanized plastic compounds. W. Kiel.

Consists in mixing together sulphur, rubber, and oil, the sulphur being in the proportion of not less than about 80 per cent. of the rubber, by weight, and vulcanizing the compound with an initial temperature of not less than 300° F.

430,975.—Red dye. C. Schraube.

The disulpho acid of the red basic naphthalene coloring matter, called "rosinduline," which has the chemical composition represented by the formula, $C_{28}H_{17}N_3(SO_3H)_2$, and which is characterized by the following properties : It is a red crystaline powder soluble in concentrated sulphuric acid, giving a bright green solution ; it is slightly soluble in cold water, more readily soluble in boiling water ; its alkaline salts are crystalline, and soluble in hot, slightly soluble in cold water ; the sodium and potassium salts crystallize from hot solutions on cooling after the addition of common salt ; the free acid dyes animal fibre a bright red color in the acid bath.

Issued July 1st, 1890.

431,026.—Process of manufacturing red lead. M. Alsberg.

The process consists in incorporating lead nitrate into the material (oxide or carbonate of lead), and exposing the resulting mixture to heat sufficiently high to first drive off any water that may be contained in it, and then to decompose the lead nitrate, thereby furnishing oxygen for the formation of minium.

431,044.—Process of making antimony fluorides. O. O. B. Froelich.

Antimony fluoride and its soluble compounds are prepared by treating a mixture of antimony ore, alkaline nitrates and fluor spar with oil of vitriol, extracting the soluble matter with water, neutralizing the solution with alkalies, and evaporating to crystallization.

431,059.—Carburetor. P. Keller.

431,104.—Protective covering for electric cables. J. H. Cheever.

Consists of rubber, plumbago, asbestus and sulphur.

431,132.—Test tube. J. C. Wharton.

A test tube having a ground or roughened external surface.

431,229.—Filtering apparatus. O. H. Jewell and W. M. Jewell.

431,243.—Obtaining acetic acid and methyl alcohol. F. C. Alkier.

The process of recovering the methyl alcohol and acetic acid from the waste wash water or lye in the manufacture of paper from wood pulp, which consists in concentrating the lye by repeated use, neutralizing by means of an alkali as concentration proceeds, recovering the methyl alcohol from the concentrated solution by distillation, evaporating the residuary liquid to dryness, and obtaining the acetic acid from the acetate by distillation with an acid.

431,268.—Paint. H. Le Bates and E. P. Lawrence.

Consists of a color, and a base composed of a soluble chloride and nitrate, alcohol, molasses and water.

431,297.—Azo color. J. Walter.

Aniline is dissolved in hydrochloric acid and water. When heated to a proper degree sodium nitrite is added. This solution is poured, while stirring, into an alkaline solution of solicylic acid. The whole is then precipitated with an acid and filtered. The dry product of the combination is dissolved in sulphuric acid. Then a mixture of nitric acid and sulphuric acid is added. The liquid thus obtained is poured in water and filtered.

431,386.—Apparatus for distilling oil. T. McGowan.

431,404.—Rosinduline sulpho acid. C. Schraube.

Is a red amorphous powder soluble in concentrated sulphuric acid, giving a bright green solution; it is readily soluble in cold water and soluble in alcohol and yields amorphous alkaline salts, which are also readily soluble in cold water and cannot be precipitated by common salt. It dyes animal fibre in the acid bath a bright red color.

431,407.—Process of preserving meat, etc. W. Smith.

Meat, etc., is sealed in vessels in sterilized air.

431,426.—Method of making fabrics. J. I. Wood.

The process consists in first, soaking a fibrous material in a bath of rosin soap; second, drying the material; third, subjecting the material while yet damp to a bath of zinc chloride; fourth, passing it over hot rollers; fifth, washing it; sixth, drying it; seventh, coating it with oil; and lastly, passing it between calenders.

431,429.—Manufacture of plates and slabs for building purposes. A. van Berkel.

Consists of burned magnesium carbonate or magnesite, raw paper stuff, peat, sand or other finely divided material, and a solution of fluoric silicate containing vegetable flour.

431,448.—Filter, T. S. E. Dixon.

431,472.—Process of making thiooxydiphenylamine. M. Lange.

A salt of metaoxydiphenylamine is heated with water, sulphur and an alkali or alkaline carbonate, or with a sulphide or polysulphide of alkali. It is a light yellow powder, easily soluble in alkalies, soluble in alcohol and acetic acid, and also, though more difficultly, soluble in alkaline carbonates; insoluble in water and benzene. The solutions are of a yellow color. When heated the substance becomes brown and melts at about 155° C.

431,505.—Making white lead. P. Bronner.

The process consists in converting normal lead sulphate into a basic salt, such as $2\,Pb\,SO_4$. $Pb\,(HO)_2$, or $3\,Pb\,SO_4$, $Pb\,(HO)_2$—by heating it with caustic alkaline lyes, and then heating the basic salt, with a solution of an excess of sodium carbonate.

431,535.—Apparatus for the manufacture of gas. W. J. Taylor.

431,541.—Blue dye. T. Reissig.

Is produced by the condensation of alphanaphthylamine, with the mononitroso compound of diethylmetaamidophenol, and has the following properties: It appears in the form of a dark, crystalline, bronze-like powder, soluble in both alcohol and water with a blue color, the alcohol solution turning red upon the addition of caustic alkali, and becoming decolorized by subsequent heating with zinc dust, but quickly resuming its red color upon the access of air, while the aqueous solution of the coloring matter is precipitated by caustic alkalies, the precipitate consisting of the free coloring base, being soluble in sulphuric ether, with a yellow color and a yellow fluorescence, and it produces upon animal fibres without the aid of a mordant in a neutral or slightly acid bath, and upon vegetable fibres, with the aid of a tannin mordant, bright blue shades, similar to those of methylene blue.

(*Issued July 8th, 1890.*)

431,646.—Composition for the soles of boots or shoes. W. A. Burrows.

Consists of leather flock, water, gelatine and chrome alum.

431,730.—Process of obtaining meat extract. J. Van Ruymbeke.

431,795.—Apparatus for testing the burning qualities of oil. F. W. Arvine.

431,912.—Process of making aluminium. C. Netto.

Cryolite is melted with a flux, and an alkaline metal suddenly introduced.

431,932.—Apparatus for the manufacture of gas. W. T. Bate.

431,937.—Apparatus for extracting oil. H. A. A. Dombrain.

431,985.—Fire extinguishing compound. C. M. Martin.

Consists of sodium chloride, sodium thiosulphate, ammonium chloride, magnesium sulphate, magnesium chloride, calcium oxide and ferric oxide, mixed and dissolved in water.

431,986.—Purifying salt. E. K. Mitting.

The salt recovered from spent soap lye is washed with a saturated solution of salt, to which a small proportion of alkali has been added, and a similar saturated solution containing acid. W. R.