ABSTRACTS.

ORGANIC CHEMISTRY.

Boiling Points and Specific Volumes of the Ethereal Salts of the Normal Fatty Acids. R. GARTENMEISTER.

The author has prepared the formiates, acetates, propionates butyrates, valerates, caproates, heptylates and octylates of the radicals methyl to octyl inclusive, also methyl nonylate; he has determined in addition the boiling point at 760 m. m. (corr.), specific gravity at boiling point and at 0°, also volume at boiling point and specific volume, and from these data deduces the following conclusions:

1. The difference between the boiling points of the methyl and octyl salts of the same acid diminishes as the acid grows richer in carbon, and the difference between the boiling points of a formiate and an octylate of the same alcoholic radicle decreases with an increase of carbon in the alcohols.

As a rule, formiates have a higher boiling point than the metameric methyl salts. The acetates boil at a higher temperature than the metameric ethyl salts. The difference between the boiling point of an acetate and a formiate is greater than that between the methylic and ethylic salt. Generally, in the case of metameric ethers, the highest boiling point corresponds to the greatest density. The formiates are an exception to this rule. The difference between the specific volume of the methyl and octyl salt of the same acid and the difference between the formiate and octylate of the same alcohol increases with the number of carbon atoms.

The results of the author are directly opposed to those of Schiff (Jour. Chem. Soc., 1883, 1044), while Stödel (Ibid., 302) in his statement that in a group of isomerides, the substance with the lowest boiling point will have the greatest specific volume, is confirmed by the author except in the case of the formiates.

As regards expansion, the author finds that the formiates show the least expansion. They are followed by the methyl salts. The acetates expand a little less than the ethyl salts. As a rule those ethereal salts having the highest boiling points show the lowest rates of expansion. (*Liebeg's Annalen*, **233**, *249*.) R. W. M.

On the Toxic Effects of the Lower Fatty Acids. H. MAYER.

For the purpose of these researches injections partly intra-venous and partly sub-cutaneous were made of the sodium salts, which had been made slightly alkaline with acid sodium carbonate. Preliminary experiments showed that an injection of a neutral salt (NaCl) in very concentrated solution (29%) produced death accompanied by cramps, while the 10 per cent. solution in doses of less than two grammes per kilogramme could be injected without injury. The sodium salt of acetic acid is not more poisonous than sodium chloride, while the corresponding salt of butyric acid has a strong paralyzing action. In cats, which show the influence of salts more distinctly and constantly than puppies, sub-cutaneous injections of the sodium salts of formic, proprionic, butyric and valeric acids caused drowsiness and coma, even in quantities in which the acetates and lactates are as indifferent as common salt. In general the action of the salt increases with each additional atom of carbon, with an exception in the case of formic acid whose effect is between that of butyric and valeric acid. (*Arch. f. exp. Path.*, **21**, *219.*) R. W. M.

Fluidity of Absolute and Diluted Acetic Acid. K. NOACK.

The author uses the formula $F = \frac{F' + F'^2 \, v \, s}{2^{10}/_3 \, \pi \, 1 \, z}$ for the flow of liquids through capillary tubes where F= corrected and F′ the uncorrected fluidity, v the volume of liquid passed, s its specific gravity and z the time of flow. The influence of temperature is greatest with water and decreases on addition of acid. A minimum of fluidity is found with 77% acid. (*Ann. Phys. Chem.*, **27**, **28**, *666.*) R. W. M.

The Non-acid Components of Beeswax. F. SCHWALB.

The examination of this substance showed that besides the higher fatty acids and alcohols, hydrocarbons were also present. From the non-acid portion, more soluble in petroleum ether, were isolated two hydrocarbons melting at 60.5° and 68° respectively, which from all appearances were identical with the normal heptacosan $C_{27}H_{56}$ and normal hentriacontan $C_{31}H_{64}$ of Krafft.

From the portion more difficultly soluble in petroleum ether, there were separated an alcohol with a melting point of 85°–85.5°, probably of the composition $C_{31}H_{64}O$, which on heating with soda lime, yields the acid $C_{31}H_{62}O_2$, melting at 88.5°–89° and soluble with difficulty in hot methyl alcohol, dilute ethyl alcohol and a mixture of ether and alcohol.

Ceryl alcohol ($C_{27}H_{56}O$ or $C_{26}H_{54}O$), the acid from which $C_{27}H_{54}O_2$ or $C_{26}H_{52}O_2$ melts at 78.5°, is also found as well as an alcohol $C_{25}H_{52}O$ or $C_{24}H_{50}O$ yielding an acid $C_{25}H_{50}O_2$ or $C_{24}H_{48}O_2$ melting at 75.5°. (*Liebig. Ann.*, **235**, *106.*) R.W.M.

On Linoleic Acid. KARL PETERS.

The author found the composition of linoleic acid, the barium salt of which, in order to avoid decomposition, he prepared by crystallizing but once from ether and then dissolving in cold ether and separating with dilute acid, to correspond with the formula $C_{18}H_{32}O_2$ instead of $C_{16}H_{28}O_2$.

This formula is proved by the fact that the linoleic acid, digested for eight to ten hours at 200°–210° with an equal volume of hydriodic acid (boiling point 127°) and five grammes of amorphous phosphorus, is converted into an acid, which after freeing from the last traces of iodine by means of sodium amalgam, melts at 69°, and corresponds with the formula of stearic acid $C_{18}H_{36}O_2$. The barium salt of linoleic acid also corresponds with the formula $(C_{18}H_{31}O_2)$ Ba. (*Monatsh. f. Chem.*, **7**, *552.*) R. W. M.

On the Influence of Carbohydrates and Fatty Bodies on the Putrefaction of Albumen. A. HIRSCHLER.

One hundred cubic centimeters of aqueous meat extract were mixed with an equal amount of pancreas extract, 200 c.c. of water and ten grammes of calcium carbonate. The whole was then digested for three to six days at 30°, when a third of the fluid was distilled off and the distillate tested for indol, skatol and phenols. To the remainder sulphuric acid was added and the ether extract tested with Millon's reagent for oxyacids. Sixteen grammes of cane sugar, eight grammes of glycerine, eight grammes of dextrin or starch added to the above mixture prevented completely the formation of

aromatic putrefaction products. Eight grammes of calcium lactate had the same effect, while emulsified olive oil, calcium malate, tartrate and citrate and sodium tartrate had no effect. (*Zeit. f. physiol. Chem.*, **10**, *306.*) R. W .M.

Production of a Gray Color on the Fibre by Simultaneous Oxidation of Aromatic Mono- and Diamines. MONNET. Y. COS.

The patent indicates production of grays with blue or brown shades by molecular mixtures of paraphenylenediamine with aniline, with toluidine, with mixtures of aniline and toluidine, etc. For example: paraphenylenediamine hydrochloride 58.3 parts, aniline hydrochloride 41.7. This mixture printed with an oxidizing agent gives a solid, bluish black.

For dyeing on cotton a similar mixture of salts is taken, 4 to 6 kilos., according to shade; for 900 kilos. of cotton add sufficient water at 60° Cent. containing 2 kilos. of potassium chlorate and 40 grms. vanadium chloride. (*Mon. de la Teinture*, *XXX.*, **23**, *272.*) M. L.

ANALYTICAL CHEMISTRY.

Detection of Peptones in Blood and Urine. M. GEORGES.

The author considers all of the existing processes defective; he employs the two following:

1. Wassermann's process for the detection of peptones in blood.

Pour the blood into strong alcohol; filter and evaporate the alcoholic solution. The coagulum produced by the alcohol is washed with cold water, then with boiling water; the solutions are concentrated and added to the alcoholic residue. The latter is treated with a mixture of sodium acetate and ferric chloride after neutralizing with excess of alkali. Filter and separate the last traces of albumen by potassium ferrocyanide and acetic acid; filter again and precipitate excess of ferrocyanide with cupric acetate; filter again and treat with H_2S; filter finally and concentrate on the water-bath.

2. The treatment for urine begins by a precipitation of albumen by heat, based upon the insolubility of the albuminoid precipitate with potassio-mercuric iodide in acetic acid; in applying this method

to urine treat this liquid with the double iodide and acetic acid after elimination of albumen by heat. The precipitate is collected and washed on the filter with cold water acidulated with acetic acid; then washed with boiling water. The liquid of this second washing is collected separately. If the solution contained peptones, a precipitate will appear on cooling. The reaction of Piotromski (addition of a solution of copper sulphate and a few drops of caustic potash) can be tried on the neutralized liquids. The characteristic coloration is rose with a violet-blue tinge. (*Arch. de Pharm.*, **1**, *534.*) M. L.

On the Elaidin Reaction. FINKENER.

If to 10 c.c. of olive oil is added 1 c.c. of nitric acid (sp. gr. 1.4) and 0.4 grm. of copper foil, and the same is shaken for one half minute, the red vapors are dissolved and the oil when cooled to 10°–12° solidifies within 30 minutes to a perfectly solid mass. If mercury is used instead of copper, the solidification is slower. If sulphuric acid (sp. gr. 1.53) is used and a concentrated solution of potassium nitrate, the same red vapors are given off dissolving on shaking, but when the oil is subsequently cooled to 10°, no solidification takes place even after 24 hours. If nitric acid (sp. gr. 1.2) is used and potassium nitrate the oil begins to solidify after 12 hours. Nitric acid (sp. gr. 1.4) and potassium nitrate produces solidification after three hours. Nitric acid of the same strength alone does not cause the oil to solidify. A mixture of equal volumes of fuming sulphuric acid and water causes solidification in four hours. If nitric fumes are passed through the oil, the solidification begins after several hours.

Besides olive oil, peanut oil treated in the same way with nitric acid and copper, solidifies, but poppy and linseed oils do not; sesame oil, after 75 minutes at 10°, becomes as solid as soft butter. (*Mitth. aus. den. Kgl. Versuchsanst, 1886, 113.*) R. W. M.

Milk-testing for Addition of Water. SOXHLET.

100 c.c. of milk are boiled with 1.5 c.c. of a 5% solution of calcium chloride. A small portion of the filtrate is treated with sulphuric acid in which 2% of diphenylamine is dissolved. When this mixture is spread over concentrated sulphuric acid, the

presence of acids containing nitrogen is indicated by a blue line at the line of contact of the two liquids.

The following process is much more delicate: 450 c.c. of milk are boiled with 6–7 c.c. of a 20% solution of calcium chloride, the filtrate (about 300 c.c.) treated with 2 c.c. concentrated sulphuric acid and 120–150 c.c. distilled off. The distillate made feebly alkaline with soda is evaporated down to 5 c.c. in a platinum capsule and tested as above. (*Repert. der anal. Chem., 1886, 360.*)

R. W. M.

Examination of Soap Powders. FINKENER.

One gramme of the sample is warmed to boiling with 10–15 c.c. of a mixture of equal parts of 85% alcohol and concentrated acetic acid. Pure soap powder dissolves completely; foreign substances such as talc collect at the bottom, while soda, chalk, etc., are detected by the evolution of carbon dioxide. If the clear layer is treated with water, the fatty separates out on the surface. (*Mitth. aus den Kgl. techn. Versuchsanst, 1886, 113.*) R. W. M.

Addition of Goat's Milk to Cow's Milk. N. GERBER.

This addition is not indicated either by the specific gravity or the per cent. of fat. The cream, however, does not rise on goat's milk and the presence of it in cow's milk causes much of the cream of the latter from rising. Even 10% will considerably diminish the amount of cream. (*Bied. Centrbl., 1886, 419.*) R. W. M.

Detection of Cinchonidine in Quinine Sulphate. DE VRIJ.

The process is based on the great insolubility of quinine chromate.

Take 1 grm. of quinine sulphate, dissolve in 100 c.c. distilled water. To the solution add 0.240 grm. of pure, neutral potassium chromate and allow to settle over night; the yellow chromate deposits; filter and the cinchonidine remains in solution. If no turbidity appears when caustic soda is added to the solution, no cinchonidine is present. If a turbidity appears the proportion of cinchonidine sulphate is estimated to be 5%. To collect the cinchonidine two-fifths of the solution must be evaporated, and it is better then to operate on 5 grms. of salt. The author considers the process of irreproachable accuracy. (*Arch. de Pharm.*, **1**, *548.*)

M. L.

Abstracts of American Patents Relating to Chemistry.

(From the Official Bulletin of the U. S. Patent Office.)

July 27th, 1886.

346,114.—Manufacture of white pigments. Geo. T. Lewis.

346,143.—Compound for coating and finishing walls. E. A. Bronson.

Consists of plaster of paris, sand, glue, whiting or Keene's cement, marble dust, and a suitable coloring matter.

346,150.—Waterproof composition for felt shoes, slippers, etc. J. Feldmann, C. H. Feldmann, and D. Dunbar.

Consists of caoutchouc, magnesia, wheat flour, sulphur, zinc oxide, alum and lamp black.

346,168.—Apparatus for manufacturing lamp black. J. J. McTighe.

346,169.—Manufacturing carbon black. J. J. McTighe.

Hydrocarbon vapor is subjected to intense heat, without combustion, so as to dissociate the gases, and the dissociated vapors are cooled to deposit the carbon black.

346,258.—Process of electro depositing nickel. E. C. Bates.

346,301.—Gas retort furnace. G. A. McIlhenny.

346,304.—Water filter. A. McLean and F. Cumming.

346,336.—Mixed paint. F. Wendling.

Consists of potassium silicate, calcium "fluoxide," cryolite, marble, basic calcium carbonate, and calcium phosphate.

346,448.—Process of extracting paraffine from petroleum distillate. C. Vose.

Aug. 3d, 1886.

346,461.—Soap compound. C. F. Broadbent.

Consists of white borax chips, sodium hyposulphite and French chalk.

346,525.—Making hydraulic cement. J. Anderson.

Ordinary cement or limestone rock is immersed in a solution of acetic acid and then calcined.

346,581.—Composition for preserving leather. E. Z. Coffee.

Consists of water, gambier, Glauber's salt, beef suet, concentrated lye and crude coal oil.

346,729.—Artificial stone. H. A. Daniels.

Consists of sand, cement, and a solution of caoutchouc or non-friable binding material.

346,730.—Artificial stone. H. A. Daniels.

Consists of sand, cement, caoutchouc and an alkali.

346,731.—Artificial stone. H. A. Daniels.

Consists of sand, cement, glue, pearl ash, alum, coloring matter and gallic acid.

346,732.—Artificial stone. H. A. Daniels.

Consists of sand, cement, caoutchouc and sodium chloride.

346,733.—Artificial stone. H. A. Daniels.

Consists of sand, cement, a binding agent, as glue, and vitriol.

346,736.—Manufacture of artificial stone. H. A. Daniels.

Articles formed of artificial stone composition are subjected to vapor arising from alum.

346,765.—Compound for increasing combustion of coal, etc. J. S. McIntire.

Consists of common salt, sodium sulphate, sodium bicarbonate, sodium nitrate, ammonium carbonate, zinc, sulphate, borax, resin and charcoal.

346,768.—Manufacture of whiting. J. Quinn, Jr.

Consists of pulverized chalk, produced from calcined ground gypsum which has been previously set and hardened.

346,803.—Carbureting compound. F. W. Burk.

Consists of benzine, vegetable wax and gum camphor.

346,820.—Process of preparing starch. G. Luthy.

Aug. 10th, 1886.

346,940.—Apparatus for carbureting gas. W. F. H. O'Keefe.

346,973.—Apparatus for manufacturing lamp black. J. Wilson.

347,078.—Compound for perfecting the combustion of coal or other fuel. G. White.

Consists of sodium chloride, sodium sulphate, lime, cement, plaster, charcoal, or any other similar absorbent, and water.

347,164.—Manufacture of incandescents. A. de Lodyguine.

Carbons are prepared from organic substances containing the elements of water, by treating the organic substances with boron fluoride.

Aug. 17th, 1886.

347,345.—Refining vegetable oils. A. T. Hall.

The oils are treated with sulphuric acid while held in solution in hydrocarbon spirit or other solvent.

347,349.—Process of dephosphorizing iron by means of fluorine. J. Henderson.

The molten iron is treated with some compound of fluorine.

347,367.—Hydraulic cement. J. Murphy and N. W. Lord.

Consists of limestone, furnace slag, salt and clay, which ingredients are mixed, burned, and then reduced to powder.

347,381.—Vacuum evaporator for saccharine and gelatinous liquids, milk, etc. N. B. Rice.

347,424.—Dynamite. M. Eissler.

Consists of coated granules of nitrates, nitro-cellulose, and nitro-glycerine, combined with rye flour.

347,525.—Process of preparing paper for sun pictures. J. S. Simonds.

347,611.—Method of manufacturing malt liquors from starch. W. T. Jebb.

347,612.—Method of manufacturing malt liquors from starch. W. T. Jebb.

347,663.—Apparatus for carbureting gas. J. S. Tibbets.

347,693.—Process of decomposing and carbureting natural gas. J. M. Critchlow.

347,731.—Process of making alcohol. C. Ordouneau.

August 24th, 1886.

348,165.—Process of bleaching mechanical wood pulp and other vegetable fibres for the purpose of manufacturing paper. C. J. A. Just, F. A. Fletcher and C. F. Gibbs.

The process consists of the following steps: first, treating the pulp or fibre with an emulsion composed of a mineral oil and an alkaline oxidizing agent; second, adding common salt; third, adding an acid or its specified equivalent; and fourth, treating the resulting product with an oxidizing or bleaching agent.

348,178.—Process of and apparatus for manufacturing heating gas. A. W. Wilkinson.

August 31st, 1886.

348,348.—Process of producing chlorine. G. Rumpf.

Vapors containing ammonium chloride are passed over manganese oxide, and the resulting manganese chloride is decomposed by passing air over it.

348,391.—Wire coating compound. E. L. Gates.

A composition for coating wire, previous to drawing, consisting of flour and a solution of sodium carbonate.

348,415.—Manufacture of artificial stone. F. Reimers.

Composed of sand or gravel and cement, or of pulverized gypsum, united and solidified by mixing with a solution of water, bittern water, caoutchouc dissolved in naptha, sodium carbonate, gum arabic, magnesia, zinc chloride and ferric oxide.

348,483.—Production of phenylmethyloxyquinicine. H. von Perger.

Produced by the action of hydrazobenzene upon acetylacetic ether.

September 7th, 1886.

348,613.—Manufacture of yellow coloring matter or dyestuff from gallic acid. R. Bohn.

348,816.—Resorcin-blue compound. H. M. Baker.

The compound is prepared by making a solution of resorcin in an excess of ammonium hydrate, agitating the resulting solution by the alternate, or intermittent immersion therein of a copper plate, adding dilute acid in excess, boiling and filtering.

348,882.—Apparatus for the purification of gas. A. Delaney and W. Simpkin.

348,904.—Apparatus for cooling oil to extract paraffin, etc. N. McF. Henderson.

348,917.—Carburetor to be used in the manufacture of water gas. F. C. Kniese.

September 14th, 1886.

348,993.—Rendering animal and vegetable fibre water proof, etc. T. J. Pearce and M. W. Beardsley.

The material is treated with a compound of carbon disulphide and maltha.

348,994.—Insulating wire and conductor for electrical purposes. T. J. Pearce and M. W. Beardsley.

The wire is coated with a solution of maltha in carbon disulphide.

349,172.—Composition for waterproofing and preserving. R. E. Nichols.

Consists of creosote, paraffin wax, paraffin oil, benzine, napthalene and a fluid hydrocarbon.

349,211.—Method of and apparatus for carbureting and mixing gas and air. G. R. Cottrell.

349,228.—Apparatus for making and burning gaseous fuel. J. Locke and S. O. Richardson.

349,241.—Apparatus for making sulphuric acid. J. J. Thyss.

September 21st, 1886.

349,304.—Composition for streets, sidewalks, etc. T. Egan.

Consists of pitch, stone, gravel, sand, cement, cinder, sulphur, air slaked lime, salt and tar.

349,414.—Pan for concentrating sulphuric acid. K. J. Sundstroem.

349,449.—Process and apparatus for distilling. J. C. Peden.

349,574.—Process of preserving milk. R. Ellin.

Milk is mixed with sugar and evaporated to dryness below 140° F

345,589.—Tanning process. G. W. Hersey.

The process consists, first, in placing the hides in a liquor consisting of lye and salt; second, adding ashes or bran until the hair starts; third, adding more bran; fourth, placing the hide in a liquor consisting of salt, alum, borax, saccharine matter, French ochre and water.

349,658.—Process of and apparatus for washing, decoloring and draining pyroxylin. G. M. Mowbray.

Pyroxylin is decolorized by treating with oxalic acid and hydrochloric acid, or with an acid oxalate.

349,659.—Method of drying pyroxylin. G. M. Mowbray.

September 28th, 1886.

349,744.—Process of dephosphorizing iron by means of oxides of iron. J. Reese.

349,751.—Composition of matter for packing the joints of gas pipes. A. H. Rowland and R. S. Hunzeker.

Consists of tar and molasses, or other saccharine matter.

349,760.—Algin and other useful products. E. C. C. Stanford.

Sea weeds are treated with solution of sodium carbonate, and the algin is precipitated by an acid.

349,852.—Preservation of meat. C. Marchand.

Meat is immersed in a solution of hydrogen peroxide under pressure.

349,885.—Manufacture of paint. G. W. Holley.

Mineral oxides, earths and other pigments are combined with one-half to one-tenth their weight of finely pulverized sulphur and linseed oil.

349,900.—Composition for preserving food. W. Radam.

A fumigating composition, consisting of sulphur, sodium nitrate, manganese dioxide, sandal wood and potassium chloride.

348,981.—Obtaining sulphur from hydrogen sulphide. C. F. Claus.

Hydrogen sulphide is decomposed by contact with anhydrous oxide of iron heated to 200° F.

350,012.—Production of salol. M. W. Nencski.

Produced by the action of phosphorous oxychloride upon a mixture of salicylic acid and phenol.

October 5th, 1886.

350,148.—Extracting zinc from its ores by means of gases. C. H. Murray.

A process for distilling zinc from its ores, effecting its distillation by forcing through such ores superheated reducing gases, which gases are prevented from burning with fresh air or free oxygen at any stage of the operation, either before or after they have entered the ore retort, and by pressure and the imposed high temperature, in combination with said reducing gases, effecting the reduction, distillation, and condensation of the metal, in one operation.

350,170.—Bone black revivifier. J. F. Stillman.

350,218.—Bleaching compound. C. Toppan.

Consists of expressed oil of mustard seed, paraffin, sodium hydroxide, tallow soap, sodium sulphate and water.

350,229.—Yellow coloring matter. F. Bender.

Produced by treating the soda salt of a paranitrotoluolsulpho-acid with sodium hydroxide, reducing the resulting red product to an amido-sulpho acid, diazotizing the latter, and combining the diazo-compound with a mixture of phenol and its carbon acids, or with only one of the ingredients of the said mixture.

350,230.—Red coloring matter. F. Bender.

Produced by treating the soda salt of a paranitrotoluolmonosulpho acid with sodium hydroxide, reducing the product to an amidosulpho acid, diazotizing the latter, and combining the diazo-product with betanaphthylamine hydrochloride and a sodium salt of betanaphthylaminesulpho acid, or with either.

350,270.—Vacuum ice making machine. H. Pischon and R. Pfennig.

350,297.—Protective coating for the electrodes of batteries. L. A. W. Desruelles.

Consists of a fatty substance mixed with mercury.

350,382.—Carburetor. J. D. Merritt.

350,468.—Manufacture of naphthol-carbonic alkaline salts. R. Schmitt and C. Kolbe.

Carbonaphthol-acid salts are produced by the action of carbon dioxide upon the alkali salts of alpha- or beta-naphthol under pressure at a temperature of 120–145° C.

October 12th, 1886.

350,497.—Manufacture of pyroxylin. G. M. Mowbray.

350,498.—Manufacture of pyroxylin. G. M. Mowbray.

The use of steeled cast iron pots for holding the mixed acids in which the cellulose is immersed.

350,679.—Apparatus for purifying water. J. W. Hyatt.

350,680.—Coagulant for purifying water. J. W. Hyatt.

350,706.—Composition for tanning. M. Sutherland.

Consists of water, extract of cockleburr, terra japonica, extract of hemlock, and sulphuric acid.

350,765.—Paint. J. H. Palmer.

Consists of the residuum of linseed oil (from the purification of such oil) combined with linseed oil.

350,849.—Apparatus for mixing atmospheric air with natural gas. W. Snee

October 19th, 1886.

350,911.—Composition of matter to be used for journal boxes. F. J Coburn and E. M. Dean.

Consists of asbestus, plumbago, mica, talc, soapstone, sodium carbonate, litharge, mineral magnesia, and a cementing substance.

350,919.—*Lining for converters and furnaces.* W. L. *Dudley.*

Consists of aluminium oxide, ferric oxide and fire clay.

350,920.—Lining for converters and furnaces. W. L. Dudley.

Consists of chrome iron ore, fire clay and carbonaceous material.

350,921.—Lining for converters and furnaces. W. L. Dudley.

Consists of aluminium oxide and viscous carbonaceous material.

350,922.—Lining for converters and furnaces. W. L. Dudley.

Consists of aluminium oxide and chrome or titanium iron ore.

350,999.—Evaporating pan for salt, etc. G. H. Smith.

351,056.—Production of betanaphtholdisulpho-acids. F. Krueger.

Concentrated sulphuric acid is heated above the melting point of betanaphthol, and after introducing the betanaphthol, the temperature is maintained at 125-145° C. for four to five hours. The resulting betanaphtholdisulpho-acid is separated by treating its acid or neutral soda or lime salt in aqueous solution with common salt.

351,069.—Bleaching wood and other material. G. H. Pond.

A bath of calcium sulphite is decomposed with sulphuric acid, thereby freeing the sulphurous acid, and developing oxygen, which, in conjunction with the free sulphurous acid, partially bleaches the pulp.

351,082.—Manufacture of salt. H. Williams, J. L. Alberger, and L. R Alberger.

351,184.—*Producing anhydrous aluminium chloride.* C. F. *Mabery.*

Hydrochloric acid gas is passed over an aluminium alloy heated to 200-300° C., and the resulting aluminium chloride is condensed.

351,195.—Lubricating compound. D. L. McKenzie.

Consists of animal fat, mineral oil refuse, slaked lime, and manganese.

351,204.—Tanning process. J. T. Rhyne.

351,210.—Sizing material for papermakers' use. C. Semper.

351,330.—Lining for digestors. A. D. Little.

Consists of oxide and borate of lead.

October 26th, 1886.

351,352.—Process of forming oil from kerosene and tallow for lubricating. A. Andrews and D. E. Andrews.

One part of melted tallow is mixed with four parts hot kerosene oil and heated to boiling.

351,380.—Mixed paint. O. Kall.

Consists of blood containing fibrin, slaked lime, potassium permanganate, and lavender.

351,412.—Process of obtaining ammonia and illuminating gas from tank waters. J. Van Ruymbeck.

Concentrated tank waters are heated to about 500° F. and the volatile products are collected.

351,413.—Art of making glass and vitreous or porcelaneous products. J. T. Wainwright.

351,424.—Moth and disinfectant paper. W. H. H. Childs.

Consists of layers of paper and an interposed layer of naphthalene.

351,484.—Soluble laundry blue. G. W. Barlow.

Soluble blue powder mixed with glycerine.

351,607.—Process of making fish glue. W. N. Le Page.

351,611.—Compound for insulating telegraph wires, etc. R. Alexander.

Consists of asphaltum, residuum of petroleum, or crude petroleum, mineral wool or glass flock, and cement or calcium carbonate.

November 2d, 1886.

351,865.—Process of concentrating ammoniacal liquor. C. W. Isbell.

351,890.—Compound for preparing starch or flour size for yarn, textile, or other fabrics. C. N. Waite.

351,929.—Bone black drier. S. M. Lillie.

November 9th, 1886.

352,216.—Preserving timber. H. Aitkin.

The outer surface of the timber is saturated with naphthalene.

352,236.—Process of mordanting. B. Finkelstein.

Vegetable fibres, yarns, or woven goods impregnated or printed with tannin are mordanted with antimony by treating with antimony oxalate suspended in water.

352,316.—Manufacturing white lead. W. E. Harris.

Carbonate of lead is prepared by the action of sodium carbonate on lead sulphite and lead sulphate.

352,361.—Protection of acetine-blue colors. C. Schraube.
Obtained by the action of acetine on induline.

352,438.—Preparation for cleaning and polishing metals. H. A. Arndt.
Consists of oxalic acid, rotton stone, tartaric acid, table salt and water.

November 16th, 1886.

352,611.—Explosive compound. E. Du Pont.
Consists of nitrates and sulphur combined with charcoal retaining its fibrous structure.

352,618.—Process of and apparatus for generating compound gases. C. G. Fairchild.

352,615.—Process of purifying and hardening copper and copper alloys. F. M. Forman.
Copper and a carbonate are fused together, and carbonaceous material is burnt above the same.

352,620.—Manufacture of gas from crude petroleum. F. C. Kniese.

352,630.—Boiler water purifier. E. A. Russell.

352,644.—Filter. W. Foulkes and W. E. Foulkes.

352,662.—Process of and furnace for burning wet vegetable, animal or mineral matter. L. P. Rider.

352,663.—Process of burning gas. L. P. Rider.

352,726.—Manufacture of artificial leather or leather cloth. W. V. Wilson.
A fabric is coated with the residuum from a solution of mononitrocellulose in amyl acetate, mixed with oil and a coloring matter.

352,729.—Manufacture of parchmentized paper board. E. Andrews.

352,759.—Method of sizing paper. C. Kellner.
The pulp is mixed with resin soap, and the resin precipitated by a sulphite.

352,808.—Process of clarifying coffee or cocoa. S. C. Davidson.
Borax or alkali is added to faint alkaline reaction.

352,809.—Process of clarifying tea. S. C. Davidson.
Borax is added to faintly alkaline reaction.

352,852.—Insulating material for electric wires. D. Brooks, Jr.
Consists of rosin and rosin oil.

352,889.—Composition of matter for fuel. H. Prinzhorn.
Consists of charcoal, sodium nitrate, potassium nitrate, or other soluble hyperoxide, glue, dextrin, gum arabic, or other adhesive material, clay and iron filings.

November 23d, 1886.

352,943.—Water purifying apparatus. J. H. Blessing.

352,944.—Apparatus for purifying water. J. H. Blessing.

352,945.—Compound for coating wood, cordage, etc. T. B. Boscher.
Consists of water, gas tar, dead oil, pine tar, naphtha, ammonium chloride, and bone black.

353,092.—Refining raw colored sugars. C. Steffer.
The sugar is lixiviated with an aqueous solution of pure sugar.

353,112.—Welding compound. J. O. Ball.
Consists of zinc oxide and sand.

353,207.—Water filter. W. H. Cummings.

353,210.—Fertilizer. D. W. Dudley.
Equal quantities of bone meal and wood ashes are saturated with water and allowed to remain in such condition for about three weeks, then lime is slaked in brine and added to the mixture; finally salt and gypsum in equal quantities are added to the mass.

353,222.—Apparatus for making sulphuric acid. J. Hughes.

353,247.—Process of making steel. D. Brose.
Manganese and calcium carbonate are added to the refined metal, at or near the same time.

353,264.—Manufacture of sulphonated purple dyestuffs from basic rosaniline. C. L. Müeller.

353,265.—Manufacture of sulphonated purple dyestuffs from basic rosaniline. C. L. Müeller.
Obtained by the condensation of tetraethyldiamidobenzophenone with benzyldiphenylamine and toluol.

353,266.—Manufacture of sulphonated purple dyestuffs from basic rosaniline. C. L. Müeller.

November 30th, 1886.

353,311.—Carburetor. P. Keller.

353,341.—Compound for tanning. H. L. Wilcox.
Consists of the extracts of *polygonum* and *rhus glabrum*.

353,358.—Apparatus for oxidizing drying oils and other liquids. J. W. Hoard and T. R. Hoard.

353,362.—Process of distilling petroleum. G. H. Kline.

353,378.—Liquid for the production of cold.
Consists of liquid anhydrous sulphur trioxide and carbon dioxide.

353,404.—Method of filtering sugar liquors, sirups and saccharine juices. C. H. W. Foster.

353,468.—Process and apparatus for dissolving and removing the gum from nettle and other plant fibres. T. E. Schiefner.

353,501.—Brick. E. L. Ransome.
An unburned brick made from tufa, or tufa and lime.

353,514.—Filter Press. M. Swenson.

353,515.—Concentrating Pan. M. Swenson.

353,523.—Ornamentation of glassware. A. Witthauer.
Consists of ale, beer, epsom salts and nitre.

353,566.—Process of manufacturing soap and glycerin. M. H. Lackersteen.
Neutral fats and oils are emulsified with a solution of sodium chloride, etc., and the emulsion is subjected to electrolysis. W. R.