

think that it is an isomer of the first one and possibly may be the diamido-*o*-dixylylphenylmethan, while the former may be the diamido-*p*-dixylylphenylmethan. This, I think, is a fair assumption, inasmuch as I started with commercial xylydine, which is a mixture of the ortho- and para-compounds, and it is to be supposed that in the subsequent treatment with benzaldehyde, they may have both been converted into the corresponding diamidodixylylphenylmethans.

Having at present no analytical data at hand, I am unable to prove the soundness of the above assumptions, but hope in a future paper to present the necessary data, and to throw more light on these interesting compounds.

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## ABSTRACTS.

### GENERAL AND INORGANIC CHEMISTRY.

#### Contributions to the Study of the Salts of Platinum. E. TROST.

The author does not believe in the equi-saturating power of all oxides, and thinks that the molecules of oxides that enter into the composition of basic salts do not answer to the excess of energy of the base compared with the anhydride. He asks, are not the so-called basic salts the true normal salts?

To study this question he takes the salts of platinum. The accepted formula  $\text{Pt}(\text{SO}_4)_2$ ;  $\text{Pt}(\text{AsO}_3)_4$ ,  $\text{Pt SO}_3$  are imaginary; he finds that the obtainable platinum salts have a well defined basic character.

1. *Platinum Nitrate*.—The evaporation of the hydrate in strong nitric acid gives a solid body, reddish, insoluble in water and answering to the formula  $\text{Pt}(\text{N}_2\text{O}_2)_2 \cdot 3\text{PtO}_2 \cdot 5\text{H}_2\text{O}$ . The addition of water to the primitive acid solution gives an hydrate  $\text{PtO}_2 \cdot 3\text{H}_2\text{O}$ , and another  $\text{Pt}_3\text{O}_4 \cdot 9\text{H}_2\text{O}$ .

2. *Platinic Perchlorate*.—The solution of hydrate platinum in perchloric acid evaporated *in vacuo* gives a basic salt, very different from the normal  $\text{Pt}(\text{ClO}_4)_4$ ; the salt analyzed was found to be  $\text{Pt}_6\text{ClO}_9 \cdot 15\text{H}_2\text{O}$ .

3. *Platinic Sulphate*.—The author could not produce this salt by Davy's method (oxidation of the sulphide by fuming nitric acid). The result of this oxidation is gum like; the presence of a small quantity of nitric acid prevents its decomposition by water; if free from acid the solution gives a precipitate formed by a basic sulphate  $\text{Pt}(\text{SO}_4)\text{OH}_2$ ,  $4\text{Pt}(\text{OH})_4 \cdot 3\text{H}_2\text{O}$ .

The author did not succeed in producing double sulphates of platinum and alkaline sulphates, similar to the alums. The bodies obtained differed according to the degree of dilution and acidity of the solutions; the salts of ammonium and rubidium were soluble in water; those containing potassium were not. (*Bul. Soc. Chim.*, 46, 156.) M. L.

### Formation of Sulphuric Acid during the preparation of Dithionic Acid. W. SPRING and E. BOURGEOIS.

Heeren in 1826 showed that the production of sulphuric acid during the preparation of dithionic acid by  $\text{SO}_2$  and  $\text{MnO}_2$  is lessened by using a very fine peroxide and a low temperature. The authors have verified these assertions at a constant temperature of 21–22°.

1. With pyrolusite passing through a sieve of 14 and 26 meshes per square c. m., the production of sulphuric acid was 60.98% of the amount of  $\text{H}_2\text{S}_2\text{O}_6$ .

2. Very finely divided pyrolusite  $\text{H}_2\text{SO}_4 = 80\%$ .

3. Peroxide obtained by oxidation of  $\text{Mn}(\text{OH})_2$  and drying at 110° C.,  $\text{H}_2\text{SO}_4 = 120.50\%$ .

4. Hydrate of peroxide, not desiccated,  $\text{H}_2\text{SO}_4 = 909\%$

These results are opposed to those of Heeren. Variations in the heat show that there is an increase of  $\text{H}_2\text{SO}_4$  with the temperature.

From the discussion of the facts established by these and other experiments, the authors conclude :

That  $\text{SO}_2$  forms with water a very unstable combination; only hydrated  $\text{SO}_2$ , would be oxidized by  $\text{MnO}_2$  into dithionic acid, while the  $\text{SO}_2$  not hydrated, but dissolved, would pass rather into sulphuric acid.

The authors did not succeed in producing dithionic acid by the action of dilute iodine on sulphurous gas, which Lokololu and Multschemski claim to have done. (*Bul. Soc. Chim.*, 46, 151.)

M. L.

**On Crystallized Barium and Strontium Titanates.** L. BOURGEOIS.

The author had in view the production of compounds belonging to the same group as *perovskite*,  $\text{CaTiO}_3$ . The bodies obtained, although having analogies with this salt in respect to crystalline form and optical properties, are different in chemical composition.

*Barium titanate*.—Equal molecules of titanic anhydride and barium carbonate are fused for an hour at red heat and the product is treated with dilute HCl. The small crystals obtained are cubic or cubo-octædrons; doubly refracting, and with Sp. Gr. 5.91. Analysis leads to the formula  $2\text{BaO}, 3\text{TiO}_2$ . Perovskite being calcium bititanate, the salt of barium obtained would be di-barium trititanate. A description of the titanates of strontium and of calcium is given. The author compares these titanates to the triclinic feldspars. (*Bul. Soc. Chim.*, **46**, 262.) M. L.

**On Few Connections Between Chemistry and Physics.** A. COLSON.

The author by the study of the specific gravity of xylenic derivatives is led to the following conclusions :

1. For isomers of position, the product of the multiplication of the specific gravity by the specific heat is constant.
2. Isomeric bodies possess the same coefficient of dilatation under constant pressure; and isomers of position possess the same coefficient of dilation under constant volume.

Of two isomers by position, the denser one is formed with the larger amount of heat.

The corollary of this proposition is : the compound of smallest specific heat is formed with the greatest amount of heat. (*Bul. Soc. Chim.*, **46**, 2.) M. L.

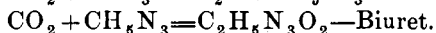
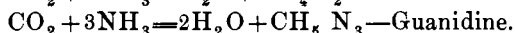
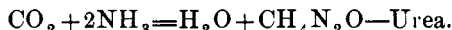
**Electrolysis of Carbon in Ammonia.** A. MILLOT.

The author has recognized, during the electrolysis of gas-carbon, (purified by chlorine), in an ammoniacal solution, the presence of azulinic matter, urea, and the derivatives of urea, such as ammelide, biuret and guanidine.

These last three products are separated as follows : the alcoholic solution of the residue left on evaporation of the liquid electrolyzed

is treated with basic lead acetate ; ammelide is thrown down ; the filtrate is treated with  $H_2S$ , evaporated and treated with alcoholic solution of oxalic acid ; urea is thus separated. Biuret and guanidine nitrate are separated by crystallization. The nitric acid is one of the products of the electrolysis of ammonia.

The formation of these bodies is represented as follows :



No cyanuric acid was formed. (*Bul. Soc. Chim.*, **46**, 242.)

M. L.

### Combinations of Water with Salts. E. J. MAUMENÉ.

*Alums.*—These salts, when anhydrous, combine with water in a proportion that has always been admitted as being 24 HO (O=8). The *théorie générale* of the author would require an amount of water equal to the weight of the anhydrous salt. In studying the alum of alumina and potash, the author finds a loss of water of 49.99 per cent. as a mean. The cubic alum gave him 49.87 water ; the calculations for 24 HO would require only 46.58 per cent. The real formula of alum is then A (HO) 28.73, and not (HO) 24. The author will continue these studies. (*Bul. Soc. Chim.*, **46**, 261.)

M. L.

### Action of the Non-Metals on the Alkaline Selenocyanates. A. VERNEUIL.

The crystalline body obtained by passing chlorine into a solution of potassium selenocyanate is not perselenocyanogen as Kypke and Neger claim, but is, according to the author, cyanogen triselenide,  $CNSe_3$ . This body is slowly decomposed by cold water, but rapidly by boiling water.

The author proposes to call this body selenium selenocyanate. Heated *in vacuo* this body, at the temperature of a salt water bath, gives a crystalline sublimate of cyanogen monoselenide. This last body is very easily decomposed by boiling water ; the decomposition by cold water is more complex, yielding for instance, ammonium selenocyanate. The selenium selenocyanate forms double salts with selenocyanates. (*Bul. Soc. Chim.*, **46**, 193.) M. L.

### **Acidimetric Determination of Sulphurous Acid and of Sulphites.** C. BLAREZ.

The process is founded on the observation that  $\text{SO}_2$  acts as a bibasic acid in the presence of phenolphthalein, and as monobasic with cochineal or helianthine. (*Comptes Rendus*, June, 1886.) In the presence of strong acids of an easily detected basicity a double titration will give by difference the amount of  $\text{SO}_2$ . Each c.c. of decinormal alkali representing 0.0064 gm.  $\text{SO}_2$  with cochineal or helianthine, and 0.0032 gm.  $\text{SO}_2$  with phenolphthalein.

The author gives directions as to the direct titration of acid, neutral and intermediate sulphites. (*Bul. Soc. Chim.*, **46**, 253.)

M. L.

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## ORGANIC CHEMISTRY

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### **Butyric Ethers of Mono- and Dichloroacetic Acids.** GEHRING.

A solution of crystallized monochloroacetic acid in normal butyric alcohol boiling at  $116^\circ \text{C}$  is saturated with dry  $\text{HCl}$ . After saturation the mixture is left for a few hours, then heated on the water bath, still keeping it saturated with  $\text{HCl}$ ; the reaction is effected on the oil bath at  $135^\circ$ . The cooled solution is then treated with water and washed with dilute soda, then agitated with mercury to remove the last traces of iodine coming from the monochloroacetic acid. The vapor density of the product is 5.1. The monochloroacetate of butyl is a colorless liquid of an agreeable, fruity odor and burning taste; soluble in all proportions in alcohol, very little soluble in water. Sp. gr. at  $0^\circ$  is 1.103; at  $15^\circ$  1.081.

For the dichloroacetate of butyl-potassium, dichloroacetate is treated with a slight excess of butyric alcohol, and  $\text{HCl}$  is passed into the mixture, which is slowly heated to  $155^\circ$ . The mixture is treated with water, and the dried oil is distilled at  $184^\circ$ - $186^\circ$ . Sp. gr. is 1.182 at  $0^\circ$ , 1.169 at  $15^\circ$ . (*Bul. Soc. Chim.*, **46**, 146.) M. L.

**Transformation of Glucoses into Dextrines. E. GRIMAUX AND L. LEFEVRE.**

Glucose is dissolved in 8 times its weight of HCl, Sp. Gr. 1.026, and the solution is distilled *in vacuo*. The resulting syrupy mass is dissolved in water, then precipitated by alcohol. The precipitate is redissolved, treated with bone black and evaporated *in vacuo*.

This dextrine is not colored by iodine; its analysis would lead to the formula  $(C_6H_{10}O_5)_3 + H_2O$ . It is transformed into glucose by dilute acids only with great difficulty. It differs from the achrodextrine of Musculus by its lower rotatory power,  $+97^{\circ}.48$ , that of achrodextrine being  $+137^{\circ}$ . The authors regard the achrodextrine as a mixture of several dextrines; the properties differ with the number of alcoholic precipitations, the most soluble dextrines having greatest reducing power. They suppose that some maltose is also found. (*Bul. Soc. Chim.*, **46**, 250.) M. L.

**Action of Zinc Powder on Benzyl Chloride. E. TROST.**

By distillation of the resin-like body produced by the action of zinc powder on benzyl chloride, the author obtained liquid bodies until the thermometer reached  $340^{\circ}$  C.; afterwards the result is a dark liquid mixed with solid matter.

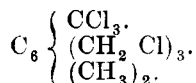
By fractional distillation the first liquid was separated into three others; one passing at  $105^{\circ}$ – $110^{\circ}$ , the second at  $140^{\circ}$ – $160^{\circ}$ , the third at  $260^{\circ}$ – $280^{\circ}$ . The liquids of this distillation were converted by fuming sulphuric acid into the sulphuric compounds, then into barium salts. The results of the analysis of these salts indicate the existence of toluol, phenyltoluylinethane, and of a small portion of benzyl chloride which escaped the action of the zinc. The author describes the treatment of the portion passing above  $340^{\circ}$ ; the solid portion was found to be anthracene. As for the liquid body the author thinks that it was the hydrocarbon  $C_{21}H_{20}$ , found by Zincke (*Ber. d. ch. Ges.*, **7**, 1154) in the residues of the preparation of phenyltoluylinethane. (*Bul. Soc. Chim.* **46**, 247.)

M. L.

### Derivatives of the Hexamethylbenzol Acid of DuroI. A. COLSON.

The author effects the chlorination by phosphorus pentachloride. (*Bul. Soc. Chim.*, **45**, 6-506.)

The chlorides obtained with the hexamethylbenzol have the formula  $C_{12}H_{12}Cl_6$ . One of these chlorides is found in the sealed tube after cooling. It crystallizes in flattened prisms, having the angles of the regular hexagon. It is colorless, hard, melts at  $269^\circ$  (at which temperature it begins to sublime), and nearly insoluble in ether and chloroform. The action of alkaline water leads the author to attribute to this body the constitution of a hexatomic ether,  $C_6(CH_2Cl)_6$ . Another chloride is found in solution in the perchloride. It is soluble in chloroform, from which on evaporation it forms crystals melting at  $147^\circ$ . The author attributes to it the constitution

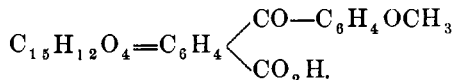


The action of the same reagent on the hydrocarbon duroI is described. The result is  $C_{10}H_{10}Cl_4$ . (*Bul. Soc. Chim.*, **46**, 197).  
M. L.

### On the Anisolphtaloylic Acid. C. NOURRISSON.

The author tried to extend the preparation of acid acetones by the method of Friedel and Crafts, (condensation of phtalic anhyd. with an aromatic hydrocarbon by the use of aluminium chloride). An acid or an alcohol cannot be used according to these authors on account of the action of the chloride on the hydroxyls of both classes. The author of this note used an ether containing oxygen, it is true, but no hydroxyls; this ether is anisol.

The preparation of the anisolphtaloylic acid is described :



This acid melts at  $141^\circ-143^\circ$ ; is nearly insoluble in water; is decomposed by distillation, soluble in alcohol, chloroform, ether, benzol and acetic acid; crystallizes best in toluol. The author describes the action of reducing agents; the transformation into a

body of the anthracene group and is condensation with phenol with the object of producing the monomethylic ether of phenol-phtalein ; without success apparently. (*Bul. Soc. Chim.*, **46**, 028.)  
M. L.

**Synthesis of an Inactive Terpilanol.** G. BOUCHARDAT & J. LAFONT.

The authors have already studied the action of acetic acid on terebene or inactive camphenoil and produced the hydrate  $C_{20}H_{18}O_2$  identical with camphenol. They now come to the results obtained by the action of the same reagent on an isomer of terebenol, belonging to the series of bivalent hydrocarbons.

*Caoutchine.*—This hydrocarbon has the chemical properties of citrenol. The author describes the result of the action of acetic acid and heat, producing acetate of inactive terpilanol ; this body boils at  $110^{\circ}$ – $115^{\circ}$  under pressure of 1 c. m. mercury, and at  $220^{\circ}$  at the ordinary pressure, but dissociates at this temperature. The properties of acetate of terpilanol chlorhydrate, and monohydrate are described. This last body tends to crystallize. The author concludes :

That the hydrocarbons  $C_{20}H_{16}$   $\times$  (terebenthenols), after their tranformation into hydrocarbons of one of the stable groups (camphenols, terpilenols) established by M. Berthelot, keep the kind of symmetry they have acquired and transmit it even to their remote derivatives, forming with those derivatives two aromatic series perfectly distinct. (*Bul. Soc. Chim.*, **46**, 199.)  
M. L.

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ABSTRACTS

RELATING TO FATS AND ALLIED BODIES.

BY R. W. MOORE.

**Heats of Combustion of Fatty Acids and their Derivatives.** W. LONGUININE.

In the  $C_nH_{2n}+2O_2$  series the increase in the heat of combustion for each increment of  $CH_2$  is about 153,000 cal. for each gram-molecule. In the combination of the fatty acids with glycerol and elimination of  $3H_2O$ , about 3000 cal. are absorbed, so that



by taking the sum of the heats of combustion of the fatty acid and glycerol plus 3000 cal. the heat of the combustion of the corresponding neutral fat can be deduced. (*Comptes Rendus*, **102**, 1240.)

#### Oxidation of Fatty Acids. H. CARETTE.

Stearic and palmitic acids oxidized by prolonged boiling with a large excess of nitric acid (Sp. gr. 1.36), yield succinic and normal propylenedicarboxylic acid. Oleic acid also yields the latter of these acids. (*Comptes Rendus*, **102**, 692.)

#### Apricot, Peach and Walnut Oils. T. MAHEN.

These oils resemble almond oil somewhat; the peach and apricot oils have a distinct odor of hydrocyanic acid. Examination resulted as follows:

	<i>Apricot.</i>	<i>Peach.</i>	<i>Almond.</i>	<i>Walnut.</i>
Sp. gr. at 15.5°.....	.9204	.9232	.9180	.9264
m. g. KOH per grm.....	181.4	189.1	183.0	194.4
Bromine figure.....	70.0	77.0	53.74	90.5

(*Pharm. J. Trans.*, [3] **16**, 797.)

#### On the Fat of Porpoise Milk. A. H. ALLEN.

From a sample of porpoise milk in which Prof. Purdie (*Chem. News*, **52**, 170.) found 45.8% of fat, Allen obtained by the Reichert process a distillate corresponding to 4.57 of valeric acid. The total acidity of the sample was 5.06% with a mean combining weight of 104.7. The occurrence of a natural glyceride with an uneven number of carbon atoms in the milk of a marine animal is also made a subject of remark by the author. (*Analyst*, **11**, 190.)

#### On Sodium Glycerinate. M. DE FORCRAND.

Glycerine is attacked in the cold by the alkaline metals, a glycerinate being formed and hydrogen liberated. The alkaline glycerinates unite with a molecule of a monatomic alcohol and form crystalline compounds. The polyatomic alcohols give more stable compounds than do the monatomic alcohols, and the quantities of heat evolved increase progressively. (*Comptes Rendus*, **113**, No. 14.)

### **Influence of Glycerol and Fat on the Secretion of Uric Acid in Man.** J. HORBACZEWSKI and F. KANERA.

Glycerol taken alone causes a marked increase in the amount of uric acid secreted, but in combination as fat causes no such change. The neutral fats have a similar action to the carbohydrates. The decrease in the amount of acid is proportional to the albumin retarding action of the fat. (*Monatsheft. Chem.*, 7, 105.)

### **Linoleic Acid.** A. BAUER and K. HAZURA.

The purified acid from hemp oil, corresponding to the formula  $C_{18}H_{34}O_2$ , when fused with potash yielded myristic, acetic and formic acids and a small amount of azelaic acid. Oxidized with potassium permanganate, with manganese dioxide and sulphuric acid and with hydrogen peroxide, azelaic acid was obtained; with a large excess of permanganate, sativic acid ( $C_{32}H_{52}O_{11}$ ) was obtained. (*Monatsheft. Chem.*, 7, 216.)

### **Composition of Suint.** A. BUISINE.

The aqueous solution of suint contains free carbon dioxide. Ammonium carbonate (from urea), potassium carbonate; acetic, propionic, butyric, valeric and caproic acids; also œnanthylic, capric, oleic, stearic and cerotic acids besides emulsions of various fats, phenol as potassium phenylsulphonate, sarcosic acid, benzoic acid (from hippuric acid), oxalic, succinic and uric acids; the amido-acids, glycocine, leucine and tyrosine; in short all such substances as are usually found in the urine of herbivora.

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## **Abstracts of American Patents Relating to Chemistry.**

*From the Official Bulletin of the U. S. Patent Office.*

*June 22d, 1886.*

**343,995.**—Gas apparatus. E. J. Jerzmanowski.

**343,996.**—Process of producing illuminating gas. E. J. Jerzmanowski.

**344,056.**—Disinfectant. A. J. Shilton.

Consists of potassium iodide, iodine, ammonium chloride, and water.

**344,075.**—Production of yellow coloring matter. F. Bender.

Is obtained by combining diazonitroamidobenzoic acid with metaphenylendiamine, converting the product into the sodium salt, and crystalizing it.

**344,079.**—Lubricating compound. R. J. Chard.

Consists of French talc, tallow, animal oil, alkali, rubber, and asbestos.

**344,097.**—Vinegar apparatus. L. Friedman.

**344,117.**—Boiler covering. M. Keenan.

A non-conducting compound consisting of paper pulp, burnt willow, loam clay, Stourbridge clay, tar, and animal hair, mixed with water and boiled, and then combined with pulped vegetables, magnesium sulphate, calcium sulphate, and vegetable size.

**344,119.**—Varnish. W. Macrone.

The improved varnish or size, consisting of colorless oil that has been heated till ebullition ceases, resin, paraffin wax, beeswax and copal varnish.

**344,139.**—Apparatus for manufacturing fertilizers. J. Seaman.

**344,140.**—Process of making sulphate of alumina compound. C. Semper.

A neutral or slightly basic solution of aluminium sulphate is treated with magnesia, magnesium carbonate, or magnesium bicarbonate.

**344,177.**—Fire and waterproof paint. C. S. Fowler.

Consists of gas tar, oxide of iron, calcined gypsum, litharge, plumbago, asbestos, common salt, and lime.

**344,184.**—Apparatus for making ammonia. D. Jarves.

**344,261.**—Fireproofing compound. J. C. Emerson.

Consists of coal tar, potassium hydrate and hydrochloric acid.

**344,323.**—Paper pulp. A. Mitscherlich.

*June 29, 1886.*

**344,390.**—Composition for the treatment of the surfaces of bricks. A. M. Long.

Consists of beeswax, linseed oil, turpentine and ammonia.

**344,409.**—Composition of matter for fireproof coating building material, etc.

Consists of sodium silicate, fire clay or aluminium silicate, water, and mineral wool or sponge.

**344,410.**—Method of treating starch and other substances. J. C. Schuman.

**344,411.**—Manufacture of starch. J. C. Schuman.

**344,412.**—Manufacture of starch. J. C. Schuman.

**344,433.**—Organic ferments (non-organized). M. Blumenthal.

Enzymae or zymotic products, such as chymosin and pepsin uncombined with each other in combination with an indifferent preservative.

**344,575.**—Process of separating tin from scrap or pieces of tin plate or tinned iron by means of hydrochloric acid. W. Hasenbach.

The heated tin plate is subjected to the action of hydrochloric acid in the form of vapor or gas.

- 344,708.**—Preparing mineral waters for transportation. L. H. Barkdull.  
The water is reduced to ice.
- 344,709.**—Separating solid paraffin from oils. G. T. Beilby.
- 344,717.**—Food product from cereals. C. S. Boynton and W. J. Van Patten.  
Any of the cereal grains is crushed, ground, or granulated, and impregnated with diastase.
- 344,730.**—Process of testing factitious butter. L. Fagersten.  
The process of treating butter and its bogus compounds, consisting in subjecting the article to indirect heat up to but not beyond the curding point, and then subjecting the same to a temperature approximating to but not above the curding point, for a period, to complete the curding process.
- 344,740.**—Apparatus for separating solid impurities from water. A. Howatson.

*July 6th, 1886.*

- 344,823.**—Composition of matter for the electrical insulation of wires covered with cotton, silk or worsted braid or tape. J. Fottrell.  
Consists of linseed oil, lead shavings, zinc oxide, Venetian turpentine, gum copal and gum sandarac.
- 344,917.**—Apparatus for distilling wood. J. A. Mathieu.
- 344,923.**—Process of manufacturing sugar. H. Reichardt and C. Heyer.  
The sugar is extracted from concentrated, impure solutions by mixing with solid strontium hydroxide. The strontia, sugar and glucose remaining in the mother lye is obtained by alcohol.
- 344,971.**—Producing mixed azo-colors. C. A. Martius.  
One molecule of a salt of tetrazodiphenyl or tetrazoditoyl is combined with one molecule of an aromatic amido-compound, and the product thus obtained is combined with one molecule of a different aromatic amido-, or of a phenol compound.
- 345,065.**—Process of preserving eggs. J. W. McKee.  
The eggs are subjected to the fumes of sulphurous acid and bromine, and then immersed in a solution of lime, salt, cream of tartar, citric acid, nitrate of potash, chlorate of potash, borax, alum and water.
- 345,131.**—Process of manufacturing charcoal. L. S. Goodrich.
- 345,132.**—Apparatus for purifying gases. L. S. Goodrich.
- 345,140.**—Process of making sulphuric acid. J. Hughes.  
Hot sulphur and nitric fumes are projected directly from the furnace against a supply of water, thereby vaporizing the water and causing the vapor and fumes to mix to form sulphuric acid vapor, and then condensing the acid vapor.

**345,174.**—Process of refining glycerine. C. L. Porter.  
Glycerine is decolorized and purified by treating it with aluminium.

**345,202.**—Treating lac. G. S. Wolff.  
Lac is partly dehydrated by the action of sulphuric acid.

**345,203.**—Product from lac. G. S. Wolff.  
Lac partially dehydrated, so as to become infusible and readily soluble in water.

**345,206.**—Compound for cleaning boilers. W. S. Baskin.  
Consists of sodium nitrate and zinc sulphate.

*July 13th, 1886.*

**345,329.**—Fuel compound. C. Siedhoff.

A compressed fuel, consisting of anthracite charcoal or coke, starch or rye flour, plumbic acetate, potassium chlorate, plumbic nitrate, glycerine and alcohol.

**345,401.**—Process of extracting copper from pyrites. A. F. Wendt.

The process consists in kernel roasting the pyrites, crushing them, leaching the oxidized ore and simultaneously separating it from the sulphurets by concentrating the kernels.

**345,402.**—Gas machine. J. S. Wood.

**345,409.**—Manufacture of starch. W. F. Birge.

**345,417.**—Art of manufacturing starch. E. E. Duryea.

**345,418.**—Apparatus for liquifying starch upon starch runs or planes. E. E. Duryea.

**345,437.**—Gas retort and furnace. A. M. Mace.

*Brief.*—Coal is distilled for producing gas, and steam and hydro carbon oil are decomposed and converted into gas in contact with hot coal or coke in the distilling retort.

**345,448.**—Ink. I. Ramsdell.

Consists of potassium bichromate, gelatin, potassium ferrocyanide, water, iron tannate, and aniline or other coloring matter.

**345,604.**—Process of making porous alum. C. Semper.

**345,605.**—Process of making porous alum. C. Semper.

**345,625.**—Process of making phosphates. J. J. Dunne.  
Natural phosphates are furnaced with alkuline sulphates.

**345,649.**—Process of and apparatus for manufacturing heating and illuminating gas. J. Roberts. W. R.