

ABSTRACTS.

GENERAL AND INORGANIC CHEMISTRY.

Solubility of Cupric Sulphate in presence of Ammonium Sulphate. R. ENGEL.

The author finds that the solubility of anhydrous cupric sulphate at 0° C is 14.92 parts to 100 water, and not 17 as the books indicate. The conclusion is that increasing quantities of ammonium sulphate precipitates cupric sulphate as a double salt so that when a solution saturated with ammonium sulphate at 0° is put in contact with the double salt during several days, the liquid remains colorless. The quantities of ammonium sulphate following a constant geometrical progression, the quantities of copper sulphate follow a decreasing geometric progression; the general formula is :

$$m \log. y = \log. K - \log x$$

y being the quantity of copper sulphate ; x the quantity of ammonium sulphate; m a constant=0.438, log. K=1,29546. (*Bul. Soc. Chim.*, 45, 128.) M. L.

New Solvents of Anhydrous Auric Chloride. L. LINDET.

The author remarks that many chlorides do not enter in combination with the gold compound, as does phosphorous chloride, but simply dissolve it, allowing it to crystallize again on cooling. The solubility in arsenious chloride is 22% at about 160° and 25% at 15°. The solubility is less in stannous chloride, being 4% at 150° for the tin compound, and nearly *nil* at the ordinary temperature. Silicon tetrachloride only dissolves very little auric chloride. Bromine compounds did not yield results similar to those obtained with the corresponding chlorides. (*Bul. Soc. Chim.*, 45, 149.)

M. L.

ORGANIC CHEMISTRY.

On Several Phenols. BERTHELOT.

The author, by the study of the homologues of phenol and naphthols, obtained results which confirm the similitude of thermochemical action of isomers of the same function.

The heat of neutralization of paracresylol and orthocresylol are respectively 8.19 Cal. and 8.27 Cal. The heat of solution being for

both about 2.10 Cal. The heat of neutralization of thymol was found to be +5.73 Cal. 1 equivalent of alkali alone yields heat. As in the case of chloral hydrate, a certain amount of heat is not manifested, being kept latent by the phenomena of fusion. The two isomeric naphthols act about the same. Green quinon, produced by direct combination of quinon and hydroquinon, yields considerable heat during its formation. Alkalies were found to have no effect upon the so-called *quinons*, as anthraquinon, phenanthraquinon, and phlorone. These form solutions with the directly oxidized derivatives of the hydrocarbons, such as acetone, allylene oxide and camphor, obtained by the direct oxidation of camphene. Alizarine manifests towards alkalies only one of the two phenolic functions that characterize this body. It acts like pyrocatechine, and like the several simple phenols (pyrogallol, phloroglucine), or the phenols of multiple function (ortho-series). So alizarine would come in line with the bodies of the orthobenzene series. The author found :

	At 12°9.	At 13°7.	Mean.	
$C^{28}H^8O^8 + NaO$	+5.17	+5.13	+5.15	} 5.79 Cal.
2dNaO	+0.65	+0.63	+0.64	
3dNaO	+0.00			

(*Bul. Soc. Chim.*, 45, 76.)

M. L.

Contributions to a Knowledge of Pyrocinchonic Acid and Dichloradipinic Acid, from α -Dichlorpropionic Acid.
I. R. ORTO and H. BECKURTS.

The two above named acids may be obtained from α -dichlorpropionic acid, by adding to a solution of the same in pure benzene, 4 times its weight of so called molecular silver, and heating in an oil-bath for 40-70 hours, under return cooler. The brownish-yellow oil formed is decanted from the chloride of silver, washed with benzene and allowed to cool. When cold, if the solution was not too dilute, dichloradipinic acid separates out in small crystals. These are collected, washed with benzene, and crystallized twice from hot water, when they are obtained in a state of perfect purity. The pyrocinchonic acid is contained in the benzene solutions, resulting from the treatment of the dichloradipinic acid, and may be obtained from the latter in the shape of crystals, by distilling off the benzene and allowing to crystallize. This substance is purified by re-

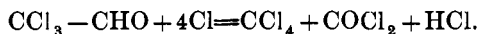
crystallizing from water, to which a little alcohol has been added, and passing through bone black. The pyrocinchonic acid above described does not exist in a free state, but only in the shape of its anhydride. It crystallizes in large white leaflets, with strong vitreous lustre, and is only sparingly soluble in cold, but more easily soluble in hot water. It is easily soluble in alcohol, ether and benzene, melting point 95.5° C. Boiling point, 223° C. A number of salts and derivatives are also described, for which see the original article. (*Ber. d. chem. Gesell.*, 1885, 825.) J. H. S., JR.

Contributions to a Knowledge of Pyrocinchonic Acid, and Dichloradipinic Acid from α -dichloropropionic Acid.
II. ROBERT OTTO and HEINRICH BECKURTS.

Dichloradipinic acid crystallizes from benzene in small, indistinct crystals, and from water in scales. It is difficultly soluble in cold, sparingly in boiling benzene, but very easily soluble in hot or cold water. It melts at 185° C., and may be sublimed at this temperature without decomposition. (*Ber. d. chem. Gesell.*, 1885, 847.) J. H. S., JR.

Action of Chlorine on Anhydrous Chloral. H. GAUTIER.

The author, in contradiction to Beilstein, finds that anhydrous chloral is attacked by chlorine. Ad. Würtz, in his researches on the action of chlorine on aldehyde, showed that the typical hydrogen was first attacked by Cl, and that the methyllic hydrogen was only affected when COH had been changed into COCl. But if the aldehyde contains any amount of water, the substitution is produced in the methyllic group. By analogy the author expected that the reaction of chlorine on anhydrous chloral would yield chloride of trichloroacetyl, the aldehydic hydrogen remaining still in the chloral. These views were not confirmed. The reaction produces a liquid body, distilling below 110° C, whereas the chloride of trichloroacetyl boils at 118° C. The effect of water upon the product of the reaction is to produce carbonic acid, and an insoluble liquid boiling at 78° C. and which was found to be carbon tetrachloride. The reaction is represented as follows:

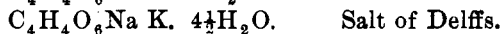
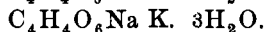
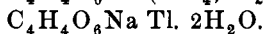
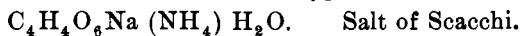


(*Bul. Soc. Chim.*, 45, 86.)

M. L.

On the Racemates of Sodium and Potassium. G. WYRONBOFF.

The author denies the hypothesis of Pasteur which asserts that the racemates are decomposed into tartrates by the action of organisms in the atmosphere. The author discusses the experiments of Scacchi on mixtures of dextrotartrates and laevotartrates. At the ordinary temperatures the racemates are more soluble than the tartrates; taking the sodio-potassium racemate, which he obtains perfectly crystallized, a supersaturated solution is prepared; this solution, kept at a temperature of 4 or 5°, gives at will a crystallization of sodio-potassium racemate or of Rochelle salt according as a crystal of one or the other of these salts is introduced into the solution. The conclusion of the author is that the racemates $C_4H_4O_6NaM$ (M being NH_4, K, Rb , etc.) do exist in the crystallized form. Four different racemates of this type are known:



The author supposes that in the breaking up of the racemates, the question of the difference of the solubilities of the two tartrates, laevorotatory and dextrorotatory, must be taken into consideration, but only as a secondary one, for even if the tartrates were of the same solubility, they would appear at the moment when the solubility of the racemate becomes greater. The author insists on this fact that a racemate is not a simple mixture, but is a special compound, *having always a different hydration from the tartrates*, and yielding water in breaking up. (*Bul. Soc. Chim.*, 45, 52.) M. L.

Oxalic Acid in Vegetation. Methods of Analysis. BERTHELOT and ANDRÉ.

According to the authors, analysts have only indicated the presence of oxalic acid by the microscopical examination of the cells, or by the precipitate given by a salt of lime in the organic liquid acidulated by acetic acid. The authors have found that other organic acids precipitate lime in the presence of acetic acid, *e. g.*, racemic acid. Calcium sulphate may give rise to similar mistakes. Even the calcium oxalate thrown down would not be pure,

being mixed, as it is, with coagulated albuminoids, and calcium tartrate, citrate and sulphate carried along by the oxalate.

The authors make an aqueous solution when looking for soluble oxalates, and acidulate with HCl when looking for insoluble oxalates. The impure oxalate is thrown down with NH_3 , and boracic acid is added in excess to prevent the precipitation of tartrates, citrates and paratartrates; acetic acid is then added, the precipitate collected dissolved in HCl, and precipitated again once or twice.

Instead of weighing the precipitate they convert into carbonic oxide by the action of strong sulphuric acid, and measure the volume of the gas. (*Bul. Soc. Chim.*, 45, 115.) M. L.

ABSTRACTS

RELATING TO FATS AND ALLIED SUBSTANCES.

BY R. W. MOORE.

Detection of Mineral Oil in Fatty Oils and Fullers' Grease. FOCKE.

Twenty grammes of the sample are treated with 8-10 grammes KHO, the alcohol is expelled, the soap dissolved in water and decomposed by HCl. The resulting fatty acids are washed with water until an acid reaction is no longer obtained, then dissolved in ether; the ether is expelled and the weight of the acids which contained the hydrocarbons determined. When the loss of weight on successive drying of the acids amounts to about 10 milligrammes the weight obtained is sufficiently constant. In oleines generally 95-97% of the original substance is obtained, in fullers' grease the figures are lower owing to the higher percentage of neutral fat. About 10 grammes of the fatty acid mixture are dissolved in 50 c. c. alcohol in a capacious flask, and treated with a slight excess of strong solution of caustic soda (1.3), using phenolphthalein as an indicator. Before they solidify about 100 c. c. of light petroleum ether or benzine (80°) are added. After mixing the liquid by vigorous shaking, the alcohol and benzine solutions are allowed to separate, 500 c. c. of water are added and the solution is allowed to

clear. The watery solution is then siphoned off and the ether solution washed with 300 c. c. water. The benzine solution is rendered clear by washing with 10 c. c. alcohol, stirring constantly. The benzine solution is then completely separated by means of a separating funnel; usually 80–85 c. c. are obtained from the original 100 c. c. It is brought into a large watch glass, the benzine is expelled by gentle warming, and the residue is weighed.

This will give the proportion of mineral oil, for the sum of the amounts obtained will be nearly 100. For the complete examination of oleine or fullers' grease the washing is indispensable, for both in the presence of fatty acids contain considerable amounts of neutral fat. The percentage of the latter is found by determining the contents of fatty acids by titration in the original substance and subtracting this from the amount obtained by the titration of the separated fatty acids and dividing the difference by 95. 100 parts of olive oils used for fulling purposes gave on an average 95% fatty acids. (*Ding. Polyt. Jour.*, 259, 146, from *Rep. d. Chem.*, 1885, 350.)
R. W. M.

Examination of Oils containing Unsaponifiable Fats. T. MORAWSKI and H. DEMSKI.

Ten grms. of the oil are treated with 5 grms. KHO, dissolved in a small amount of water and 50 c. c. alcohol, and the mixture is boiled for half an hour in a reflux apparatus. The liquid is then treated with 50 c. c. of water, rapidly cooled, transferred to a separating funnel, agitated with petroleum ether, allowed to settle, the lower portion is drawn off and the petroleum layer repeatedly washed with water. The petroleum extract is then brought into a tared flask, the petroleum ether expelled and the residue dried and weighed, thus giving the amount of unsaponifiable fat present. (*Jour. Chem. Soc.*, 78, 103, from *Ding. Pol. Jour.*, 258, 39.)

R. W. M.

Detection of Fat Oils in Mineral Oils. F. LUX.

Colza oil when heated with potassium or sodium, or their solid hydroxides, saponifies more rapidly the higher the temperature. Between 200 and 250° the soaps dissolve in the oil, which on slight cooling gelatinizes or solidifies according to the alkali used. Mineral oils thus treated do not alter in fluidity. In this way the pres-

ence of 2% of fat oil can be shown. The gelatinization took place on heating with sodium or caustic soda for 15 minutes at 200°. With less than 2% it was necessary to heat the tube in a paraffine bath, avoiding agitation. (*Jour. Chem. Soc.*, 78, 103, from *Zeit. anal. Chem.*, 24, 357.)
R. W. M.

Adulteration of Olive Oil. A. AUDONAUD.

Place 2 c. c. oil in a tube 150 mm. long and 15 mm. diameter, graduated in c.c. Add 1 gram. powdered $K_2Cr_2O_7$, agitate, and add sufficient nitro-sulphuric acid to make 4 c. c.; agitate, the liquid turns brownish red. After two minutes add enough ether to make 5 c. c. When allowed to stand there is a tendency for the liquid to separate in two layers, but soon a rapid effervescence ensues, nitrogen oxides are given off and the oil, showing a peculiar color, swims on the surface.

With pure olive oil the upper layer is green, but with any oil containing not less than 5% sesame, earth nut, cottonseed or poppy oils, the color varies from yellowish green to yellow, or even reddish yellow. If 4-5 c. c. of water is added, the color can be more readily observed. (*Jour. Chem. Soc.*, 78, 182, from *Compt. Rend.*, 101, 752.)
R. W. M.

Test for Adulteration in Butter. A. WAGNER.

This method is based upon the fact that natural butter forms an emulsion much more quickly than other fats. 0.6 gramme butter is treated in a flask with 12. c. c. of water and 2 drops of a 2% soda solution, shaken, heated on the water-bath at 37°, transferred to a separating funnel and well washed with water at the same temperature until the water becomes clear. The whole is then run out, when, if pure butter has been used, the walls of the funnel are covered with a cheese like substance. The presence of any other fat is shown by oily drops which are seen during the whole operation as well as at the end. (*Jour. Chem. Soc.*, 78, 103, from *Chem. Centr.*, 1885, 412.)
R. W. M.

Solubility of Mercuric Iodide in Fatty Compounds and other Solvents. C. MÉHU.

Oil of sweet almonds heated on the steam bath dissolves about 13 parts of iodide per 1000 of oil, $\frac{2}{3}$ of which is deposited on cooling. Heated to 180° about 80 parts of iodide are dissolved per

1000 of oil, a considerable amount of which is deposited at 150° in yellows crystals which rapidly pass into the red modification. About 4 parts per 1000 may be considered the amount retained in the cold, which can be increased by the addition of potassium iodide. Olive oil behaves in much the same manner. White oil dissolves 15.35 per 1000 at 100°. A solution of 10 parts per 1000 remained clear for six days in a cellar. Nut oil at 100° dissolves about 15 parts per 100, retaining 13 parts in the cold. Castor oil at 100° dissolves 40 parts, of which 20 are retained on cooling. Mercuric chloride and potassium iodide largely increase the solubility of the iodide. Lard retains about 4.5 parts in the cold. Vaseline dissolves only .25 parts per 1000. Phenol retains less than 10 parts per 1000. Benzene dissolves 20 grammes at 100° but retains only 4 parts in the cold. The author has also experimented with mercury benzoate and other compounds in this connection, but finds the results obtained with mercuric iodide the most valuable. (*Jour. Chem. Soc.*, 78, 110, from *Jour. Pharm.* [5], 11, 249.) R. W. M.

Formation of Basic Salts in the Saponification of Fats and Oils. M. DECHAN and F. MABEN.

From experiments showing that a soap will combine with more alkali than is required to form normal salts, the authors conclude, on theoretical grounds, that basic salts are formed, thus explaining, in a measure, the great variations of the amounts of alkali in soaps. The soaps having the largest excess of alkali over the amount required to form normal salts have the strongest detergent properties, while those approaching the normal composition are of lower cleansing properties, and are suitable to such purposes as fulling and milling. As is well known, the liberation of alkali, during the dyeing of wool and silk, is very injurious, and these facts become of great importance. In the analysis of ten samples of hard and two samples of soft soap, the extreme variations per cent. of alkalinity, in relation to the acidity assumed to be oleic, were as follows:

	Fat.	Combined Alkali.	Free Alkali.	Combined Alkali in Excess.	Total Excess of Alkali.
Hard....	68.0—24.8	9.3—6.45	0.99—trace.	3.17—0.03	4.16—0.26
Soft....	65.0—41.0	11.1—9.4	1.41—0.3	2.60—0.81	4.01—0.61

(*Jour. Chem. Soc.*, 79, 1886, from *Pharm. J., Trans.* [3], 15, 1025-7.) R. W. M.

Oxidation of Oleic and Elaidic Acids with Potassium Permanganate in Alkaline Solution. A. SAYTZEFF.

Oleic acid treated with excess of KMnO_4 in presence of excess of potash, yields dihydroxystearic acid $\text{C}_{17}\text{H}_{33}(\text{OH})_2\text{COOH}$, a crystalline acid insoluble in water, easily soluble in boiling alcohol, sparingly in cold alcohol. When pure it melts at 136.5° and solidifies at 122° – 119° . Heated in a sealed tube at 120° to 130° with hydriodic acid, or treated with phosphorus triiodide and water, it is converted into liquid iodostearic acid, which, treated with zinc and HCl , gives stearic acid. Iodostearic acid and silver oxide give hydrostearic acid melting at 83.5° – 85.5° and solidifying at 68° – 63° . The dihydroxy-acid is identical with the isodihydroxystearic acid of Overbeck (*Annalen.*, **140**, 72) whose description is inaccurate.

Dihydroxystearic acid, distilled under a pressure of 100–150 mm., gives a crystalline acid melting at 77° – 79° and solidifying at 69° – 66° , the formula of which, by analysis, approximates $\text{C}_{18}\text{H}_{34}\text{O}_3$, and it therefore appears to result from the elimination of one molecule H_2O from dihydroxystearic acid.

Elaidic acid, oxidized as above, gives an acid of the same composition as dihydroxystearic acid, but very different in properties, melting at 99° – 100° , solidifying at 86° – 85° and much more soluble in ether and alcohol. Oleic acid, treated with KMnO_4 yields azelaic acid, which, however, could not be obtained in a state of purity. (*Jour. Chem. Soc.*, **79**, 140, from *Jour. Russ. Chem. Soc.*, 1885, 417.)

R. W. M.

Bicuhyba Fat. H. NOERDLINGER.

Bicuhyba nuts from *Myrestica officinalis* or *M. bicuhyba* gave on proximate analysis :

Water	8.86%
Ash	4.50%
Fat	17.74%
Crude Fibre	30.62%
Proteids	17.62%
Non-nitrogenous extractives	20.66%

100.00

These results are very close to those of the fat of the fruit of *M. Surinamensis*, as given by Reimer & Will (*Jour. Chem. Soc.*, 1885,

1197). It consists mainly of trimyristin and triolein, with small amounts of resin and free myristic acid, together with minute quantities of ethereal oils, volatile acids, and a non-saponifiable oil. (*Jour. Chem. Soc.* 79, 139, from *Ber. d. d. Chem. ges.*, 18, 2617.)

R. W. M.

Improvements in Bleaching or Purifying Oils and Grease, M. AYRTON.

One cwt. of black oil or brown grease is boiled with 16 lb. soda, 12 lb. soda ash, 4 lb. lime, 2 lb. alum and 4 lb. starch. (*Eng. Pat.* 2381, Feb. 21, 1885; *Jour. Soc. Chem. Ind.*, 5, 35.) R. W. M.

On Milk Analysis. J. A. WANKLYN.

The author strongly adheres to the method given by him in the first edition of his work on this subject. He lays particular stress on the drying of 5 grammes of milk for fully three hours on the water bath, and disapproves of any variation such as taking 10 grammes of milk, raising the temperature to 110°, or substituting the water oven for the water bath, as in this way discrepancies are sure to result. He is also firm in the belief that milk solids obtained according to his directions are constant. The solids, not fat, he prefers to estimate in the indirect manner, and holds that the drying of milk for six hours, the use of sand or blotting paper or the use of the Soxhlet apparatus, all tend towards the decomposition of the solids not fat, which by his method he considers are not affected. (*Chem. News*, 53, 70.)

R. W. M.

Milk Ripener and Purifier. J. McKERLIE.

A shallow, oblong tank is used with a perforated trough and strainer at the lower part of one of the longer sides, beneath which is placed a corrugated sheet. The passage over the corrugated sheet in a thin film after going through the strainer reduces the milk to the temperature of the surrounding atmosphere, and it is claimed also that it deprives it of the animal odor and carbonic acid gas. (*Eng. Pat.* 9170, July 31, 1885; *Jour. Soc. Chem. Ind.*, 5, 37.)

R. W. M.

On Soaps. DECHAN.

While according to Liebig the neutral salts of the fatty acids in soaps are decomposed by water into acid salts and free alkali, ac-

ording to Dechan the tribasic sodium oleate passes over into the normal oleate in the decomposition of soaps by water.

$\text{Na}_2 (\text{C}_{18} \text{H}_{33} \text{O}_2) \text{NaO} + \text{H}_2 \text{O} = \text{C}_{18} \text{H}_{33} \text{O}_2 \text{Na} + 2\text{NaOH}$,
a solution of soap in dilute alcohol gave no precipitate with pure water. (*Ding. Pol. Jour.*, 259, 56, from *Pharm. Jour.*, 781, 1025.)

R. W. M.

Abstracts of American Patents Relating to Chemistry.

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

(January 12th.)

340,090.—Manufacture of starch. J. C. Schuman.

334,127.—Gas making apparatus. T. F. Martin.

Stéam is decomposed, and the resulting water gas, mixed with oil vapor, is passed to the fixing chamber. Coal is distilled in horizontal retorts in the superheater, and the resulting gas passed into the superheater and mixed with the water gas and oil vapor, and the mixture is converted into a fixed gas. Coke resulting from the distilled coal is discharged from the retorts into the water gas generator.

334,207.—Apparatus for filtering and separating metals. J. P. Wetherill.

334,208.—Process of filtering and separating metals. J. P. Wetherill.

334,245.—Preparing gluten flour and bread. J. E. Lauer.

Portion of the starch is washed from the flour, and the remainder is converted by fermentation.

334,257.—Manufacture of archil red azo colors. C. A. Martins.

The dyestuff is obtained by the combination of beta-naphthylamine monosulpho acid, with diazonitrobenzole.

334,290.—Manufacture of salicylic acid. R. Schmitt.

334,351.—Apparatus for distributing, etc., liquid carbonic acid. A. Convert and E. Rueff.

(January 19th.)

334,417.—Apparatus for producing gas. P. W. Mackenzie.

334,489.—Plaster or cement. J. Thomlinson.

Consists of calcined and powdered gypsum and powdered tincal, with or without powdered alum.

334,493.—Mixed paint. T. J. Venema.

Consists of resin, beeswax, turpentine, silver white, stucco, slaked lime, flour, raw linseed oil, Japan, naphtha and coloring matter.

334,518.—Process of making leather waterproof. J. A. Dietz.

The leather is first treated with a solution of lead acetate, and then with a solution of alum.

334,701.—Process of manufacturing gas. A. O. Granger.

(January 26th.)

334,966.—Apparatus for preserving by gas. L. McMurray.

334,972.—Dissolving and straining sugar. G. M. Newhall.

334,497.—Composition of matter for roofing, furniture, etc. A. A. Oliver.

Consists of fibrous stock, asbestine powder, oil, and sodium tungstate.

335,006.—Explosive compound. C. W. A. Zadek.

A mixture of calcium or magnesium resinate and trinitroglycerin.

335,040.—Filter. C. W. E. Piefke.

335,044.—Process of manufacturing grape sugar. F. Soxhlet.

An aqueous solution of grape sugar, having a density of 36.5° B., at 194° F. is crystallized at a temperature of 95° F.

(February 2d.)

335,137.—Process of and apparatus for drying bone black. S. M. Lillie.

335,240.—Preparing and treating sirups and molasses. A. Rau.

335,267.—Process of making whiskey. M. J. Allen.

335,281.—Apparatus for vaporizing liquid. H. Goldwater.

335,352.—Defecator for cane juice. L. F. Hanbtman.

335,386.—Ice machine. G. O. Rinman.

335,405.—Apparatus for making gas. J. C. Wands.

Gas is made from oil, water, and hot air. The oil and water are supplied simultaneously to a retort, and the resulting vapors or gases are passed with hot air into a separate heated mixing retort, to be combined and fixed.

335,427.—Apparatus for distilling ammoniacal waters. B. P. Clapp.

335,453.—Lubricating compound. C. Fink.

Consists of animal, vegetable or mineral oil, mixed with a compound of lime water, French chalk, ammonium chloride, ammonium carbonate, potassium carbonate, sodium bichromate and sulphur.

335,466.—Process of making paper pulp. F. J. McCormick.

Cotton seed hulls are treated with a solution of soda ash, and then ground to pulp

335,485.—Manufacture of resin acid ethers. E. Schaal.

Resin acid ethers are prepared by freeing raw resin acids from volatile or soft constituents by distillation or extraction, the hard resin acid residues being then condensed to ether by treatment with alcohols or phenol in the presence of heat, with or without pressure, and with or without addition of

substances favoring the reaction, and, lastly, by separating the resin acid ether into softer and harder resin-like bodies by distilling them in vacuo.

335,495.—Composition of matter for insulating material. J. B. Williams,
Consists of gutta percha, india rubber, colophony, gum damar, and asphalt,
all in solution, and anhydrous paraffin oil, with or without powdered silica.

335,546.—Lubricating compound. C. E. Thompson. W. R.
A combination of tallow, castor oil and graphite.