remains. Place the felt and precipitate in the same beaker and dissolve in ferrous sulphate, using five cc. at a time. Titrate back with permanganate until a pink color remains. Deduct the number of cc. used in titrating back, from the number of equivalents of ferrous sulphate used and the remainder shows the manganese in the amount of sample taken.

Permanganate Solution.—Dissolve 1.149 grams potassium permanganate in 1,000 cc. water; one cc. equals one mgm. manganese. Check by dissolving 0.1425 grams ferrous-ammonium sulphate in a little water and acidulating with hydrochloric acid. This should precipitate ten mgms. of manganese. If not, apply the factor of correction.

Ferrous Sulphate Solution.—A solution of ferrous sulphate in two per cent. sulphuric acid, so dilute that five cc. corresponds to ten cc. permanganate solution. This is best made by trial and dilution.

CHEMICAL LABORATORY,
WM. CRAMP & SONS, PHILADELPHIA.

PATENTS OF INTEREST TO CHEMISTS.

EDITED BY ALBERT H. WELLES.

Ore Separators, etc.—501,022, July 4, McCoy, J. H., ore concentrator. 500,662, July 4, Lockhart, W. S., ore separator. 500,604-605-606, July 4, Payne, C. Q., magnetic ore separator. 501,879, July 18, Fitzgerell, J. J., ore separator and amalgamator. 501,999, July 25, Fraser, A., ore crushing machine. 501,494, July 18, Davis, O. W., Jr., ore roasting kiln. 500,582, July 4, Jones, J. M., ore pulverizer. 501,188, July 11, Iles, M. W., flooring for blast furnaces. 500,621, July 4, Sheedy, D., and M. W. Iles, apparatus for separating matte from slag. 502,167, July 25. Bates, F. G., metallurgical furnace. 500,684, July 4. Westerman, F., regenerative coke oven 501,107, July 11, Siemens, F., regenerative gas furnace and producer. 502,181, July 25, Fauvel, C. J., refractory ores, treatment of; incandescent particles of freshly roasted ores are struck as they descend by crossing jets of water, while the air is excluded. 501,996, July 25, Emmens, S. H., electrolytic bath. 501,997, July 25. Emmens, S. H., electrolytic separation of metals. 501,783, July 18, Hermite, E., electrolysis of saline solutions, using a thin layer of mercury to form amalgam of metal with base.

Iron and Steel.—501,200, July 11, Wailes, J. W., open-hearth steel melting furnace. 501,138-139-140, July 11, Heath, J., and Holden, G. H., apparatus for manufacture of iron and steel. 500,979, July 4, Tweedy, E., apparatus for hardening steel.

Lead.—501,377, July 11. Smith, A. J., white lead; charge is put in corroding chambers with acid vapors and basic cream of varying degrees of concentration. 500,580, July 4. Iles, M. W., flue dust from lead smelting furnaces is charged into fusion furnaces; fused quickly; fumes are collected in screens and fusions are run out and allowed to cool.

Zinc.—501,189, July 11, Lewis, G. T., alkali is added to sulphide ores and roasted to produce zinc oxide. 501,559, July 18, Chanute, A., metals from compound ores containing zinc; ores are mixed with salt, roasted, fumes collected in screens, and leached with dilute hydrochloric acid, and gold and silver are separated by adding zinc to solution.

Aluminum.—501,553, July 18, Whitney, C. F., alloy, aluminum, 76 per cent. or more, manganese and tungsten, 12 per cent. each or less. 501,233, July 11, Richards, J. W., and Hunt, A. E., alloy, aluminum, iron and manganese (30 per cent.) with a low per cent. of carbon.

Nitric Acid.—500,786, July 4, Volz, C. O., the charge is placed in retort and distilled in vacuo.

Ammonia and Cyanides.—500,650-651, July 4, Fogarty, T. B., apparatus for manufacture.

Ammonium Nitrate.—500,914, July 4, Landin, J., alcohol is percolated through a solution of sodium nitrate and ammonium sulphate, and the alcoholic solution is passed through ammonium sulphate.

Chlorine, or Caustic Alkali.—501,121, July 11, Waite, C. N., electrolytic method, brine being first treated to form insoluble sulphates.

Quinin, etc.—501,066, July 11, Grimaux, E., manufacture of halogen derivatives such as chlor-hydro-sulphate. 500,665, July 4, Marckwald, W., manufacture of piperazin. 501,446, July 11, Schaal, E., manufacture of resin acid esters.

Tanning, etc.—501,586, July 18, Claxton, J. W., tanning hides; composition for, red oak bark, white oak bark, ash bark, salt, lye soap, soda, gum gambria, alum, and sodium phosphate. 501,797, July 18, Lussigny, H. A. A., carrotting furs; caustic alkali is used. 501,798, ditto; carbon and nitric acid are employed.

Sugar.—502,014-015, July 25, Prangey, L. E. A., process of refining. 501,878, July 18, Engel, G., ditto.

Distillation of Mash.—502,079, July 25, Ilges, R., process of separating fusel oil.

Water.—501,784, July 18, Herscher, C., sterilization of drinking water. 501,732, July 18, Roeske, H., purifying water by adding stratum of iron, which is agitated and subjected to electric current, filtering and aerating the water after treatment. 502,252, July 25, Hanna, D., purifying water for steam boilers.

Earthenware.—500,585, July 4, Klieber, J., liquid material for manufacture—clay and aqueous solution of sodium carbonate or bicarbonate.

Plasters and Cement.—501,937, July 25, Hawes, E. E., cement, tar, rosin, glue, vinegar, salt, flour, and sal soda. 501,794, 501,888-889, July

18, Laffont, M., artificial stone, "plastic refractory argil and fusible calcined argil." 502,023, July 25, Turner, J. W., artificial stone, Portland cement, rock-lime, plaster of Paris, marble dust, and sand. 502,096, 502,097, July 25, Heller, T. J., plaster compound, sodium silicate, sodium carbonate, alum, sugar, senegal gum, salt cake, and ground china ware.

Oils and Varnishes.—501,988, July 25, Carman, F. J., refining sulphurous petroleum; passing vapors through a mass of melted metal, which will reduce the sulphur and combine with it. 501,227, July 11, Hojer, T. G., preservative drier, hydrated manganese dioxide, slaked lime, and a lime salt. 501,578, July 18, Pfaune, H., varnish; made by electrolyzing linseed oil which has been acidulated with dilute sulphuric acid.

Bleaching and Dyeing.—500,917, July 4, Lifschütz, I., violet red dye from dinitro-anthraquinone. 501,500, July 18, Gano, Leo, bluish black tetrazo compound of paradiamines. 501,118, July 11, Ulrich, M., and Lauch, R., blue black tetrazo. 501,434, July 11, Müller, C., violet, sulphuretted derivative of ortho-alkyl-oxy-para-rosaniline. 501,104, July 11, Runkel, F., greenish blue triphenylmethane dye. 501,069, July 11, Hassencamp, H., violet triphenylmethane dye. 500,761-762, July 4, Green, A. G., and Lawson, T. A., red azo dyes. 500,558, July 4, Bracewell, John, printing anilin black. 501,156, July 11, Ostersetzer, O., printing cotton fabrics. 501,160, July 11, Fitzinger, W., dyeing black.

Oxygen from Air.—500,697, July 4, Webb, G., Jr., composition for; made by dissolving caustic soda in hot water, heating to 100° C., adding manganese oxide and sodium manganate, evaporating to dryness, heating, cooling and breaking.

Miscellaneous.—500,549, July 4, Baekeland, L. H., antiseptic compound; contains sodium and potassium fluoride and common salt. 501,471, July 11, Shaw, C. H., sulphur candle, 501,036, July 4, Allen, D., soft soap ingredients; hard soap, sodium carbonate, phosphate, and chlorate, concentrated lye and water. 500,934, July 4, Nirdlinger, M., artificial fuel; bituminous coal, anthracite coal, silicate of soda, dilute sulphuric acid, coal tar and coal tar pitch, manganese dioxide, and potassium chlorate. 501,323, July 11, Bryant, W. E., insecticide, for stored grain; sulphur, slaked lime, sodium sulphite, potassium nitrate, sassafras bark, gum, camphor, and thymol. 501,235, July 11, Seifert, B. R., creosote composition; derivative from creosote and carbon dioxide. 501,845, July 18, Pohle, J. G., stove polish; plumbago, phosphoric acid and a hygrometric substance. 501,254, July 11, Pohle, J. G., stove polish; plumbago and phosphoric acid. 502,163, July 25, Apple, C. S., adhesive pencil; dextrin, cold water, glue, zinc white and glucose are used. 501,222, July 11, Dame, Paul C., artificial whale bone, made from animal hair; put first in softening bath, then in a bath of acetic acid, and then pressure is employed. 501,311-312, July 11, Albertson, and Briggs, N. B., coloring and burnishing compound; soap, wax, shellac, borax, dextrin, glue, water, coloring matter, and chromic acid are used.