(5) *The Gases.*—The gases evolved at the beginning, during, and near the ending of the reaction have been analyzed. They consisted of a mixture of hydrocarbons derived from fresh coke and oxide of carbon with a small admixture of air.

Samples are not shown because you probably have already seen the display of this splendid material in the gallery of the mining building. This new material seems to me likely to cause a revolution in the abrasive market.

RAPID METHOD FOR THE DETERMINATION OF MANGANESE IN MANGANESE BRONZE.

By Jesse Jones.

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THE following method is in use in this laboratory for the determination of manganese in manganese bronze. It is an adaptation of a well-known method in common use for the determination of manganese in iron and steel. A determination can be made in less than one hour, and as the amount of manganese in the ordinary run of work seldom exceeds 0.10 per cent., the method gives fairly satisfactory results.

The Method.—Dissolve five to ten grams of drillings in nitric acid of 1.20 sp. gr., using a large beaker to avoid frothing over. An excess of acid must be avoided as it interferes with the precipitation of the copper by hydrogen sulphide. When solution is complete, transfer to a 500 cc. cylinder without filtering out the precipitated stannic oxide. Make up to 300 cc. and pass a rapid current of hydrogen sulphide from a Kipp's apparatus until the supernatant liquid is colorless. Decant off through a dry filter, 180 cc. corresponding to three or six grams of sample, and boil down rapidly to about ten cc. Transfer to a small beaker and add twenty-five cc. of strong nitric acid. Boil down one-half, make up with strong nitric acid, boil, and add one spoon full of potassium chlorate. Boil ten minutes and add another spoon full of potassium chlorate. Boil till free from chlorine, cool in water, and filter on asbestos, using filter pump. Wash with strong nitric acid through which a stream of air has been passed. When free from iron wash with cold water until no acid

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.