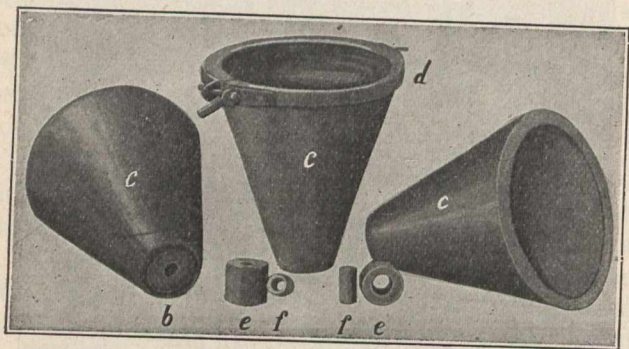


necessary, and, in fact, dangerous, as tending to produce explosions.

The same process holds good for the repair of castings, the thermit steel burning itself into the old piece so as to form one solid mass. This is one of the great fields of usefulness for thermit, as in the case of breakdowns of all kinds its use permits the bringing of the repair outfit to the break, instead of necessitating the removal of the break to the shop.

The metal to be cast may be varied by changing the thermit mixture; manganese, carbon, silicon, phosphorus nickel, etc., may be used as ingredients according to the quality of metal desired. In practice, steel turnings are added to the thermit powder, as it is found that by this means the temperature is somewhat reduced, and the formation of gases and the consequent blow holes in the metal, is avoided.



Thermit Crucibles lined with Magnesia. *b* Flow-hole. *c* Sheet-iron shell. *d* Protecting ring. *e* Large magnesia stone. *f* Small magnesia stone (thimble).

Besides its uses in welding, casting, repairing, etc., thermit has uses of more especial interest to the metallurgist. By the use of the aluminogenetic reaction, pure metals may be produced, such as: chromium, used in the manufacture of steel; manganese, used in copper and nickel manufacture, and in some sorts of manganese steel; molybdenum, and ferro-vanadium. A number of metals or alloys are also produced, such as ferro-boron, manganese-boron, and lead-boron. Another use for thermit, is a method by which piping is avoided in casting large steel ingots.

Tests are now in progress at the Toronto Railway Company's power house, to demonstrate the feasibility of thermit for welding and repairing. These tests are under the supervision of R. E. H. Buchner, the Toronto representative, Wm. Abbott, of Montreal, the agent for Canada, and Mr. Cole, an expert from New York.

BUSINESS OF THE LATE JAMES COOPER.

It is announced that the railway contractors' and miners' plant business carried on by the late James Cooper, Montreal, has been taken in hand by a new company under the style of F. H. Hopkins & Company, with offices in the new Imperial Bank Building, St. James street. With the co-operation of the executors, of the estate, the new firm has been able to retain all the agencies of the old firm, which keeps it in the front rank in this line. The new firm comprises F. H. Hopkins, J. J. Rosevear and R. A. C. McNally. Mr Hopkins was associated with the late James Cooper, and previously with the old firm of Cooper, Fairman and Company for upwards of twenty-three years; Mr. McNally was manager of the Mining Machinery Department, at Rossland, B.C., and later at Halifax, N.S., and Mr. Rosevear was in charge of the finances of the late firm. Therefore, all the associates are familiar with the business. Among the agencies taken over by the new firm are the following: Cammell, Laird & Co., Limited, Sheffield, England, steel rails, railway tires, axles, etc.; John Hy. Andrew & Co., Limited, Sheffield, England, saw steel, tool and drill steel; Glasgow Iron & Steel Co., Wishaw, Scotland, structural steel, steel plates, etc.; A. C. Wells & Co., London, England, celebrated Wells lamps; Marion Steam Shovel Company, Marion, Ohio, steam shovels, dredges, unloaders, etc.; Kilbourne & Jacobs Manufacturing Company, Columbus, Ohio, wheel and drag scrapers, wheel-

barrows, trucks, cars, carts, etc.; Pittsburg Meter Company, East Pittsburg, Pa., water meters; Ransome Concrete Machinery Company, New York, N.Y., concrete mixers, etc.; Rodger Ballast Car Company, Chicago, Ill., ballast cars, etc.; Duff Manufacturing Company, Allegheny, Pa., track jacks—all kinds; Alexander Car Replacer Manufacturing Company, Scranton, Pa., car replacers; Roberts Car and Wheel Company, Three Rivers, Mich., velocipedes, etc.; Canton Pump Company, Canton, Ohio, steam pumps, etc.; Dominion Wire Rope Company, Limited, Montreal, wire ropes, fittings, etc.

LIGHT, HEAT, POWER, ETC.

Renfrew is now lighted by the Power Company, instead of by the Renfrew Electric Company.

The Ottawa and Hull Power Company is installing a new generator in its power house at the Chaudiere.

An electric light system is being installed for Harbor Grace, Carbonear, and Heart's Content, Newfoundland, using water power. W. A. Mackay is the contractor in charge.

A general meeting of the shareholders of the Winnipeg Electric Street Railway Company will be held on August 2nd to consider the purchase of the capital stock of the Winnipeg General Power Company.

The Toronto & Niagara Power Co. has given a contract to the Dominion Wire Manufacturing Co., of Montreal, for 1,500,000 pounds of copper cable for the power transmission line. The contract is worth about \$250,000.

The Manitoba Water Power Electric Company has been incorporated with a capital of \$5,000,000 to develop power at Silver Falls, on Winnipeg river, which is claimed to be the greatest electrical power in Canada outside of Niagara.

It is expected that so soon as the Kingston lighting plants are municipalized, the citizens who voted \$182,000 to buy the works will be asked to vote another \$100,000 to \$120,000 to thoroughly equip them, and fit them so as to meet all requirements and to cope with the increasing business for the next ten years.

The St. John (N.B.) Railway Co. has completed an addition to their power plant consisting of a 1,500 h.p. horizontal cross compound automatic condensing Corliss engine, and a 650 k.w. direct connected generator. It is stated that the machinery for the St. John Railway Co.'s lighting system has been entirely renewed.

Frederick Nicholls, of the Canadian General Electric Company, and of the Toronto & Niagara Power Company, E. R. Wood, and D. E. Thompson, K.C., have secured the controlling interests in the Niagara Falls Gas & Electric Light Company. This company has been reorganized, with Mr. Nicholls as vice-president and treasurer. It is their intention to exploit the franchises which the company owns in Niagara Falls, N.Y., and other municipalities along the east side of the river to Buffalo.

The Niagara County Irrigation and Water Supply Company propose to build a power canal from LaSalle, N.Y., where it takes in the water of Niagara river, to the Devil's Hole below the Falls, where there is a sheer drop of three hundred feet. The power house will be located at Devil's Hole. It is stated that the financial end of the enterprise has been arranged through New York parties whose names have not been divulged. The company is operating under a charter procured in 1891. The plant will produce 150,000 horse power, and will cost \$10,000,000.

The De Beers Mines Company, Ltd., Kimberly, South Africa, have ordered a third Westinghouse-Parsons steam turbine generating outfit of 1,500 kw. capacity for their power plant at Kimberly. The new turbine unit will be similar in every respect to the two which have been in operation for somewhat over a year. It will operate at 150 pounds boiler pressure, 55 degrees superheat, and about 23 in. vacuum. Taking into account the altitude of Kimberly, this would be equivalent to about 27 in. vacuum at sea level.