in the block A to contain the crucible and electrodes, and broken coke, F, is packed around them. The current passes from D to E through the coke, which becomes hot and heats the crucible and its contents. The temperature can be regulated by a rheostat in series with the furnace. The whole furnace is enclosed in a metal box with a thick asbestos lining to prevent loss of heat.*

Furnaces of this type can now be made more satisfactorily by the use of a special resisting material called kryptol† which would replace the coke in the above description.

The Conley‡ ore smelting furnace is a large scale example of this class. One form of the Conley furnace consists of a shaft down which the ore passes and of carbon resistors imbedded in the walls of the furnace. The resistors are heated by the passage of a current, and communicate their heat to the ore passing over them.

Small tube furnaces heated by spirals of platinum wire, are very useful for experimental purposes, but commercial furnaces on these lines have been less successful. This is mainly on account of the difficulty of maintaining resistors and adjacent parts of the furnace, and because, of the slow conduction of heat to the charge, and the large loss of heat through the furnace walls.

A rotary electric furnace, the inner walls of which serve as resistors, being sufficiently conducting when heated, has been patented by B. von Ischewsky.‖

Tube furnaces for experimental work, in which the tube is composed of graphite, amorphous carbon, or other conducting material which is heated by the passage of the electric current, have been employed by Potter,§ Harker,* Hutton,† Tucker,‡ and others.

(2) **Furnaces with the resistor imbedded in the charge.**—The resistor is usually of carbon and horizontal.

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*Similar furnaces have been described by FitzGerald, Electrochemical Industry, vol. iii., pp. 55 and 135.

†Kryptol, see p. 149.

‡Conley furnaces, Electrochemical Industry, vol. i., p. 426, and vol. ii., p. 424.

‖Ischewsky furnace, Electrochemical Industry, vol. v., p. 141.

§H. N. Potter, Electrochemical Industry, vol. i., pp. 187, 188 and 250; vol. ii., p. 263; vol. iii., p. 346, and vol. iv., p. 191.

*J. A. Harker, Electrochemical Industry, vol. iii., p. 273.

†R. S. Hutton and W. H. Patterson, Electrochemical Industry. vol. iii., p. 455, (1905).

‡S. A. Tucker, Electrochemical Industry, vol. v., p. 227, (1907).