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(54) **Title:** A METHOD AND A REACTOR FOR PRODUCTION OF HIGH-PURITY SILICON

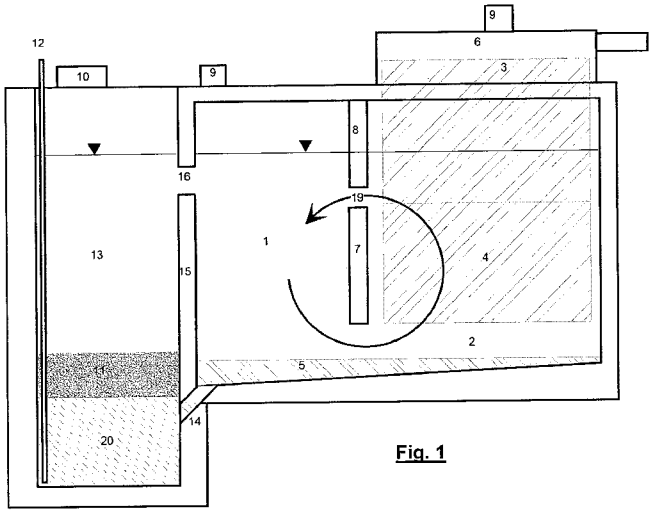


Fig. 1

(57) **Abstract:** Method and equipment for production of high purity silicon (Si) metal from reduction of silicon tetrachloride ($SiCl_4$) by liquid zinc metal. The Zn reduction of $SiCl_4$ and the production of Zn by electrolysis of ZnCb take place in a common, combined reactor and electrolysis cell using a molten salt as electrolyte. The reactor and electrolysis cell may preferably be provided in a common housing which is divided into two or more communicating compartments (13, 1, 2) by a first or more partition walls (15, 8, 7). Further, the electrolysis Of $ZnCl_2$, performed by means of suitable electrodes, is taking place in at least one compartment (1, 2) and the Zn reduction of $SiCl_4$ takes place in at least one other compartment (13), where Zn metal flows between the chamber/s (1,2) of the $ZnCl_2$electrolysis to the chamber/s (13) of $SiCl_4$ reduction, and where the electrolyte circulates between the chamber/s of $ZnCl_2$ electrolysis to the chamber/s of $SiCl_4$ reduction. The atmosphere in the chamber/s where electrolysis takes place is preferably separated from the atmosphere in the other chamber/s by the first partition wall (15).

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