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(54) Title: DECARBONATION PROCESS OF CARBONATED MATERIALS IN A MULTI-SHAFT VERTICAL KILN

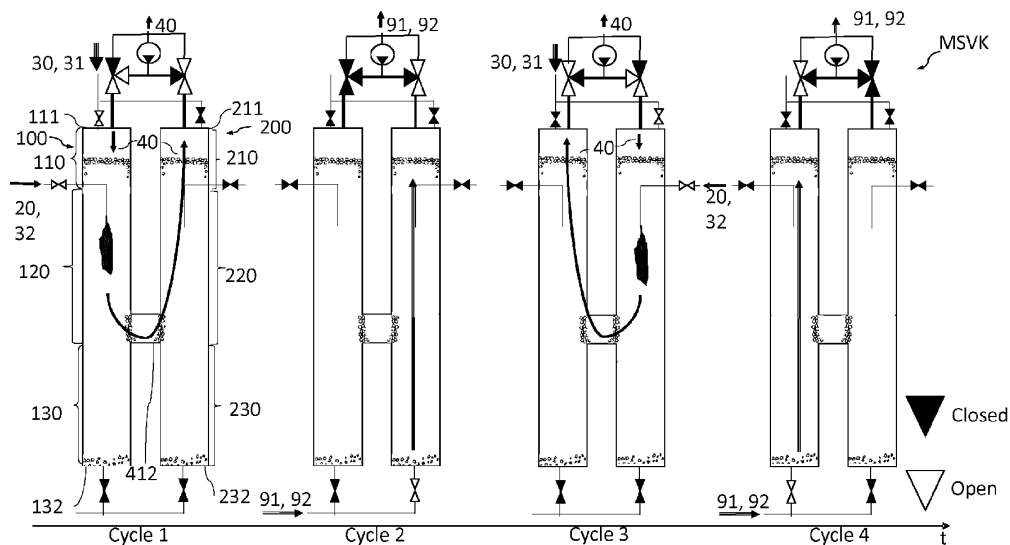


Fig. 1A

(57) Abstract: The present invention discloses a decarbonation process of carbonated materials, in particular limestone and dolomitic limestone, with CO₂ recovery in a multishaft vertical kiln (MSVK) comprising a first, a second, and optionally a third shaft with preheating, heating and cooling zones and a cross-over channel between each shaft, alternately heating carbonated materials by a combustion of at least one fuel with at least one comburent up to a temperature range in which carbon dioxide of the carbonated materials is released, the combustion of the fuel and the decarbonation generating an exhaust gas, the decarbonated materials being cooled in the cooling zones with one or more cooling streams, wherein a mixing between the exhaust gas and the one or more cooling streams is minimized by operating said kiln in a mode in which between two subsequent alternating heating

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cycles between the first and the second or the third shaft, the decarbonated materials in at least the first, the second and/or the third shaft are cooled with the one or more cooling streams while a supply of the fuel in each shaft is stopped.