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Reducing gas prodn. in liq. metal reactor - with recycling of off-gas from exidn. of reducing gas

Prodn. of reducing gases from solid, liq. and/or gaseous carbonaceous feeds is carried out by injecting the feed into a metal melt through a nozzle located beneath the surface of the melt, with the improvement that off-gases formed by oxidn. of the reducing gas in a redo, process (esp. redn. of iron ore in a shaft furnace) are also injected into the melt through the nozzle to produce more reducing gas.

## ADVANTAGES

Recycle of the off-gases not only regenerates reducing gas (with savings in energy, O<sub>2</sub> consumption and gas purificn.) but also cools the nozzle and facilitates injection of the feed into the melt.

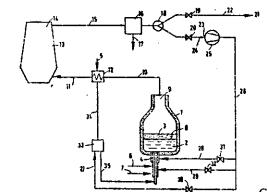
## EMBOD!MENT

The liq. metal reactor (1), e.g. contg. molten Fe (2) and a slag layer (3), is equipped at the bottom with a multiple concentric nozzle (4) with inlets for the feed (5), lime for slag forming (6) and an O<sub>2</sub>-contg. gasification medium.

H(4-E4, 9-C)

The product gas (comprising CO and H<sub>2</sub>) is passed via

a heat exchanger (12) to a shaft furnace (13). The furnace off-gas (comprising  $CO_2$  and  $H_2O$ ) is passed through a dust-removing cyclone (16) and at least part is compressed (25) and recycled to one or more of the nozzle inlets and/or to a mixing zone (33) for entraining the feed. (4pp367).



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