

US 8,088,328 B2
VACUUM NITRIDING FURNACE

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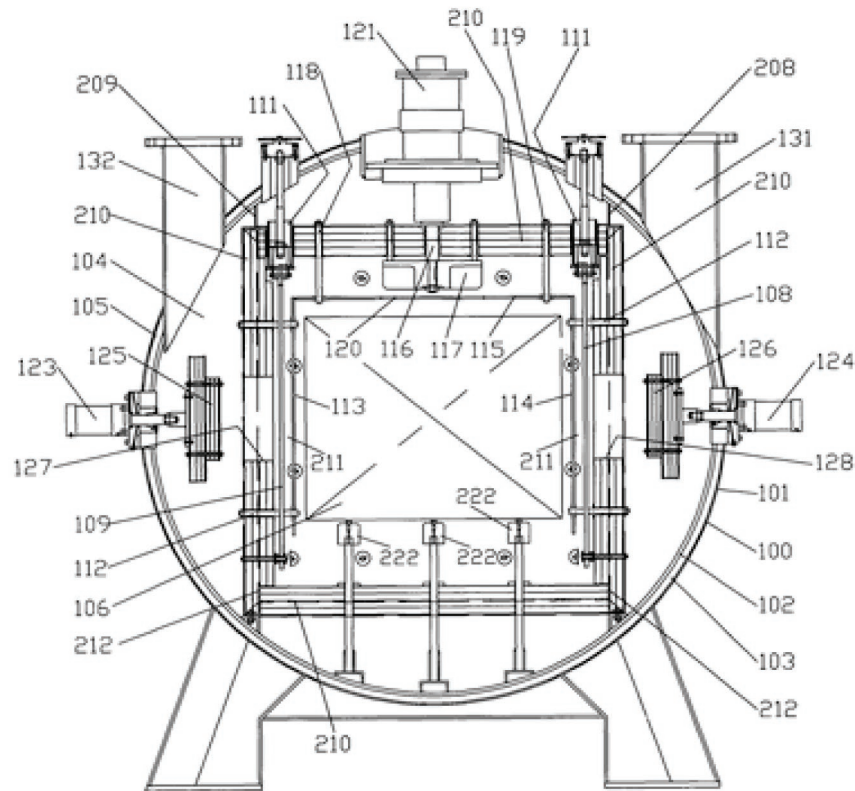
Filed on Jun. 13, 2008, as Appl. No. 12/157,768.

Prior Publication US 2009/0309277 A1, Dec. 17, 2009

Int. Cl. C21D 1/06 (2006.01); C21D 1/74 (2006.01)

U.S. Cl. 266—252 [266/250; 148/216; 432/247]

13 Claims



1. A vacuum heat treating furnace for nitride case hardening and gas cooling a stationary workload in the same furnace, comprising a single chamber and access means, said chamber being segregated into an outer portion and an inner portion, said inner portion of said chamber being adapted to receive the workload to be nitride case hardened through said access means and further being surrounded by graphite insulation means to retain gas used to nitride case harden the workload, said inner portion further including a plurality of graphite resistance heating elements and a plurality of graphite plates juxtaposed in near proximity to said graphite resistance heating elements forming a conduit therebetween, said inner portion further including fan assembly means adapted to circulate the nitriding gas within said inner portion and through said conduit to provide uniform nitride case hardening of the workload, and said outer portion of said chamber including port means for sealing in the hot nitriding gas from escaping from said inner portion of said chamber during the nitride case hardening heat treating cycle, and for sealing out any cooler gases from said outer portion during the nitride case hardening heat treating cycle.