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United States Patent [19]

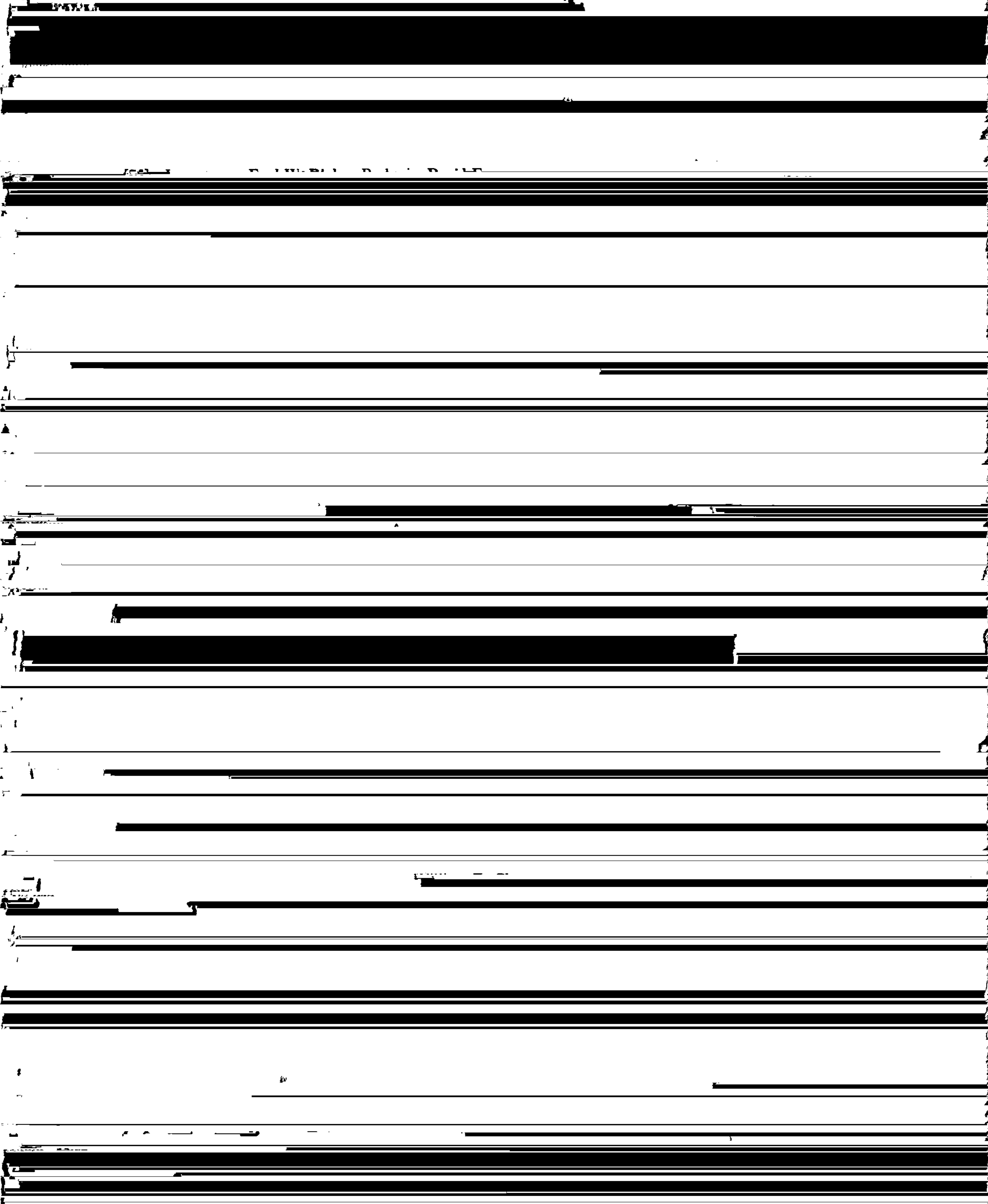
[11] **Patent Number:** **5,121,903**

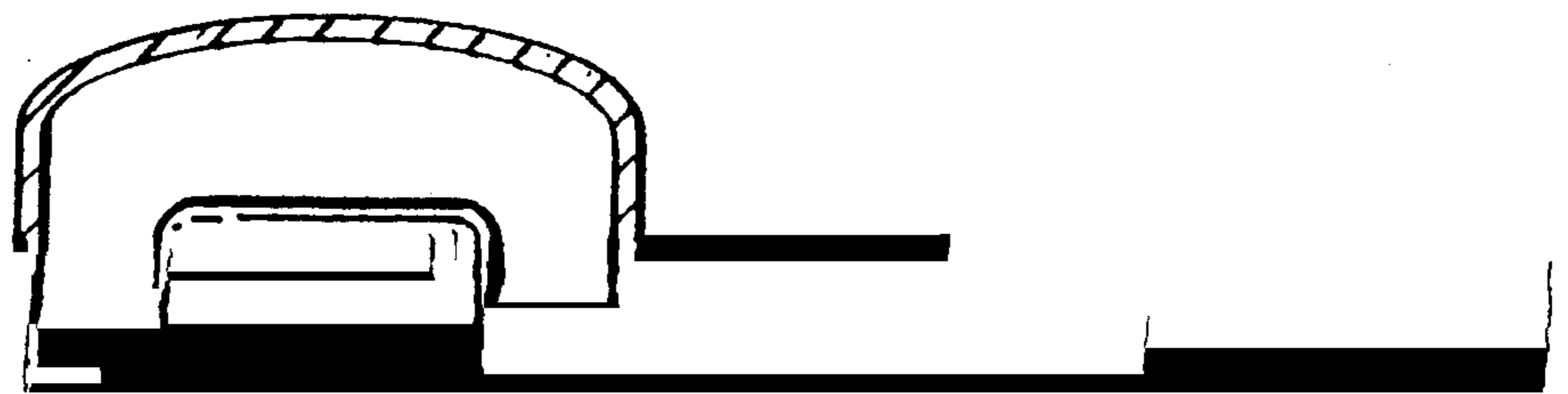
Ripley et al.

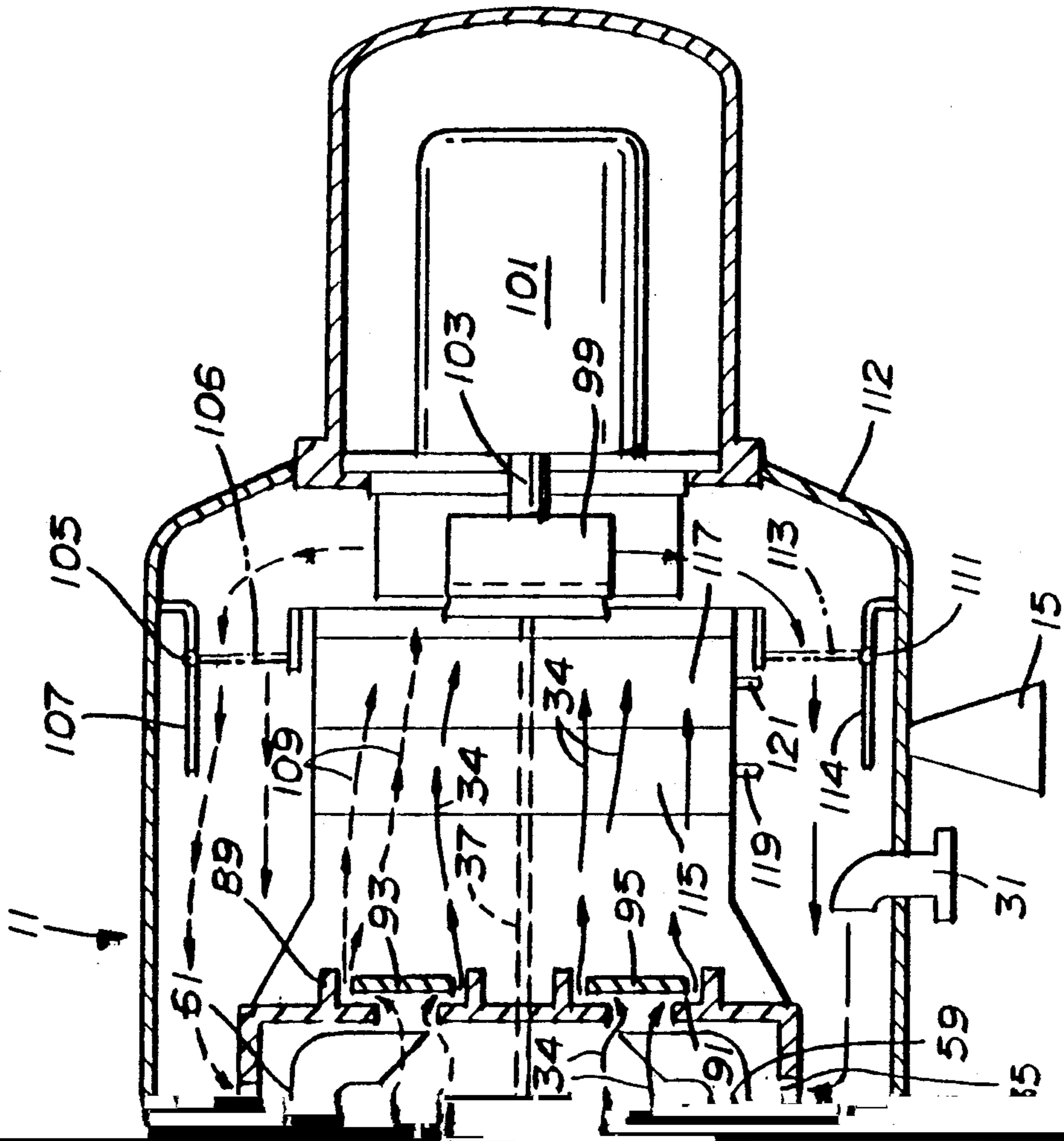
[45] **Date of Patent:** **Jun. 16, 1992**

[54] **QUENCHING ARRANGEMENT FOR A FURNACE**

4,634,103 1/1987 Schmetz et al. 266/250
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3.2

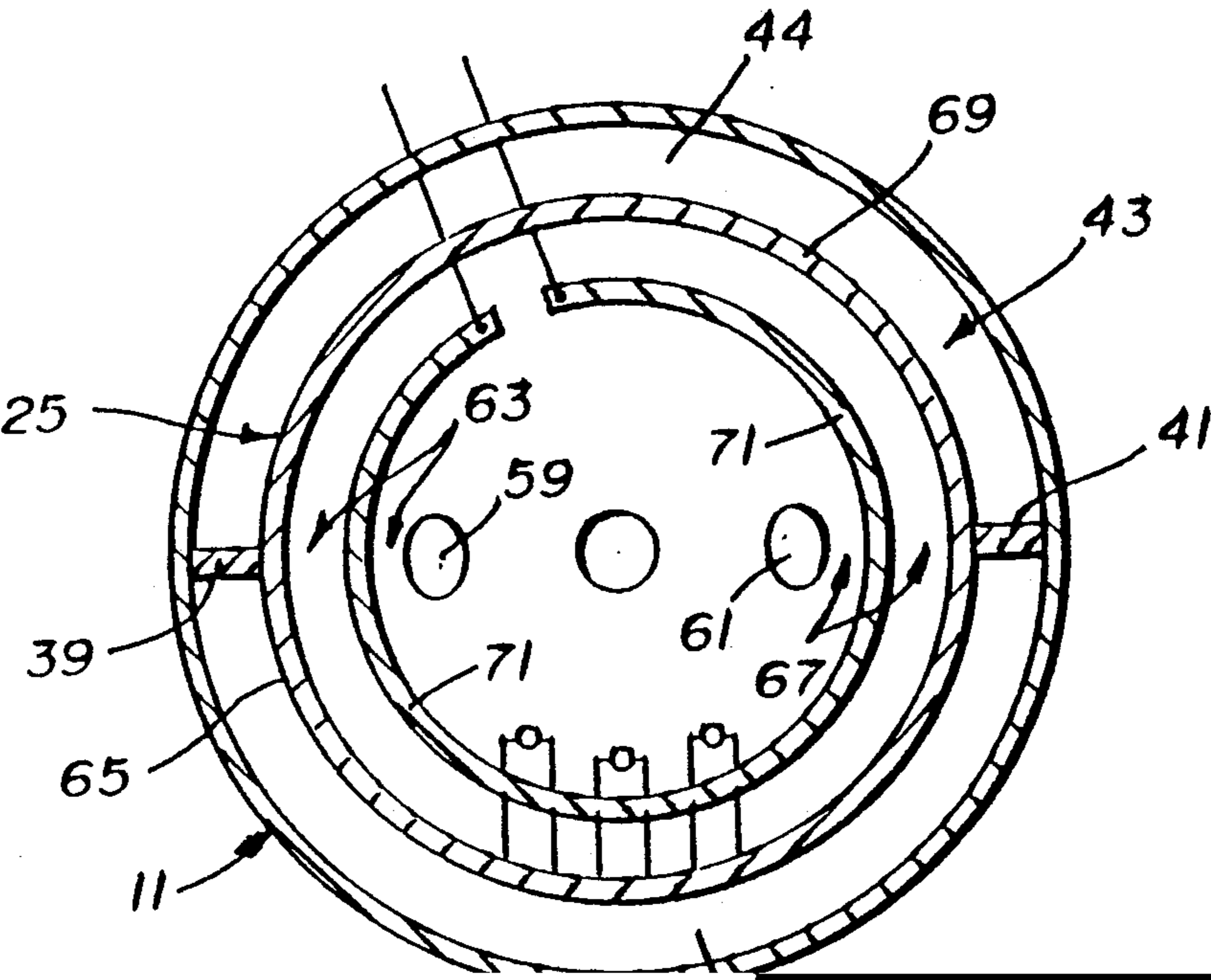


FIG. 3

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1

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short, exposure of the workpiece to multiple surfaces of

second plenum chambers enables the inert quenching gas to sweep the hot zone first from one direction (with considerable turbulence involved) with some gradients of cooling effect and thereafter, from an opposite direction with some gradients of cooling effect. The gradients of cooling are smoothed out, to provide for overall uniform heat dissipation or cooling. In order to drive the hot zone from opposite directions, the quenching gas is withdrawn from the hot zone by a recirculating turbine fan and simultaneously driven alternately, into the first and second halves of the plenum, i.e. the first and second plenum chambers. In withdrawing the quenching gas from the hot zone, it is passed through first and second heat exchangers to cool the quenching gas before recirculating the quenching gas back into the

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

Consider FIG. 1 wherein there is shown the vacuum furnace housing chamber 11. The vacuum furnace housing chamber 11 is mounted on two stands 13 and 15 as shown in FIG. 1. Also shown in FIG. 1 is a door 17 on the left-hand side of the furnace housing. The door 17 is secured in position by a number of door locking devices of which 19 and 21 are shown. The edge of the door 17 is depicted by the broken line 23. It should be understood that the door 17 is mounted on hinges (not shown) and would be swung leftward (toward the left of the drawing) on the occasions that it is opened. When the door 17 is open, the user is able to insert workpieces into

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stage is recirculated through two graphite conduits 59 and 61. The conduits 59 and 61 are fabricated from a high temperature material such as graphite because

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through the exits 89 and 91. If the inert gas escaped through exits 89 and 91, it would result in losing some of the effect of recirculation of gas across the workpiece.

additional nozzles shown on the outside wall of the hot

foregoing is shown by, in particular, the solid line ar-

same time, the gate 111 is closed, i.e. in the position shown at 113. The alternate opening and closing of the

and are numbered for purposes of identification as 34. The reverse is true during alternate halves of the

quench gas transfer means, formed and disposed in
said quench gas receiving chamber means to trans-

means disposed in close proximity to said first axial end
of said hot zone chamber means whereby heat directed

fer quench gas from said hot zone chamber means
to said at least first and second alumina chambers

through said quenching gas exit aperture means is re-

at least first and second gate means disposed within 5
said hollow chamber of said chamber housing

4. In a vacuum furnace, gas flow means according to
claim 1 wherein said quench gas transfer means includes