United States Patent [19]

Gibb

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[54] **HOT ZONE EMPLOYING GRAPHITE HEATING ELEMENTS**

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[21] Appl. No.: **253,499**

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[51] **Int. Cl.**[4] **H05B 3/08**

[52] **U.S. Cl.** **373/112**

4,429,403 1/1984 Hooper 373/111

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[57] **ABSTRACT**

The present arrangement includes a plurality of graphite support assemblies which serve to hold graphite heating elements of a graphite hot zone to be used with a vacuum furnace. Each of the support assemblies is designed to employ graphite bolts. Laminated graphite

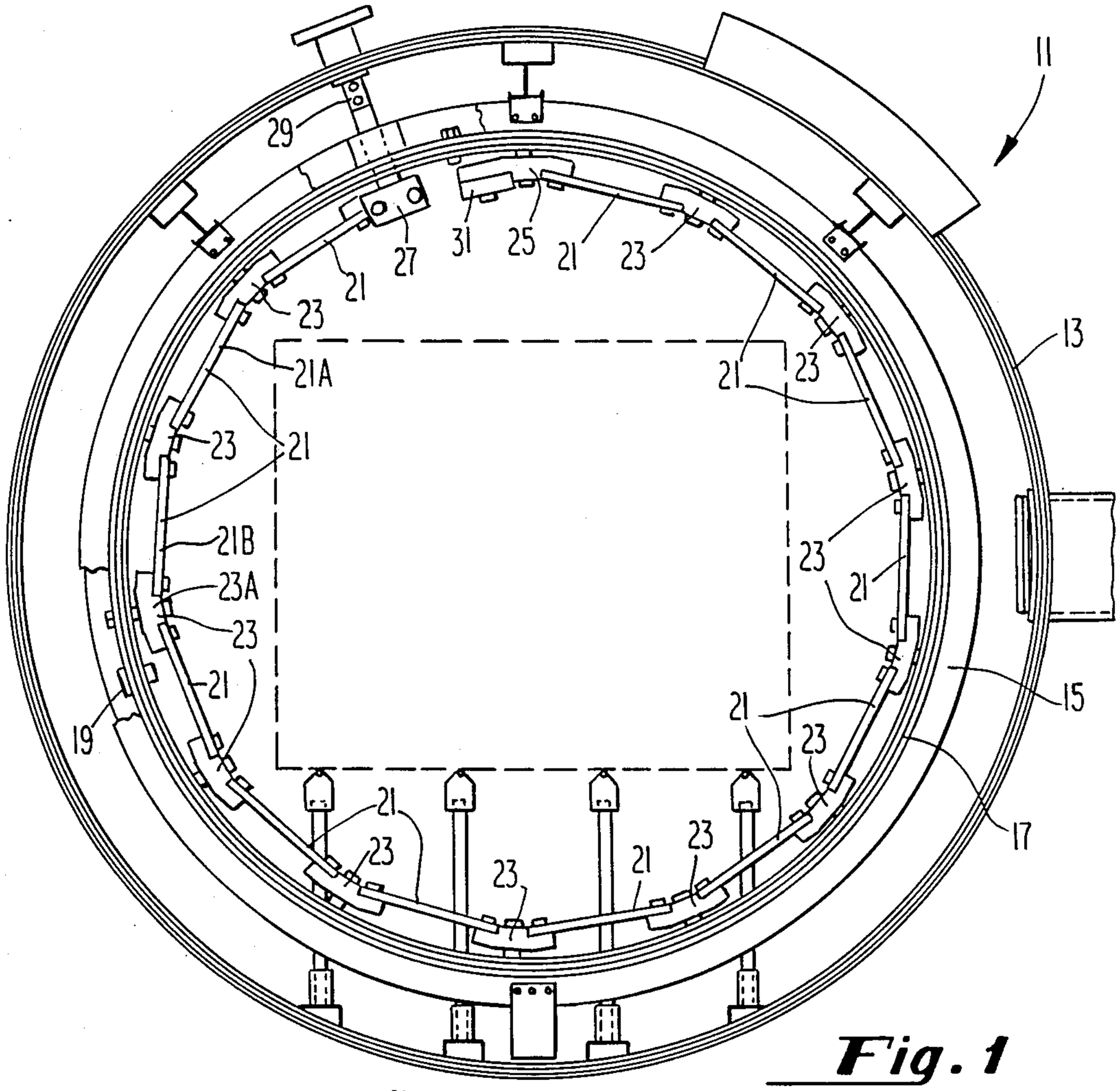

Fig. 1

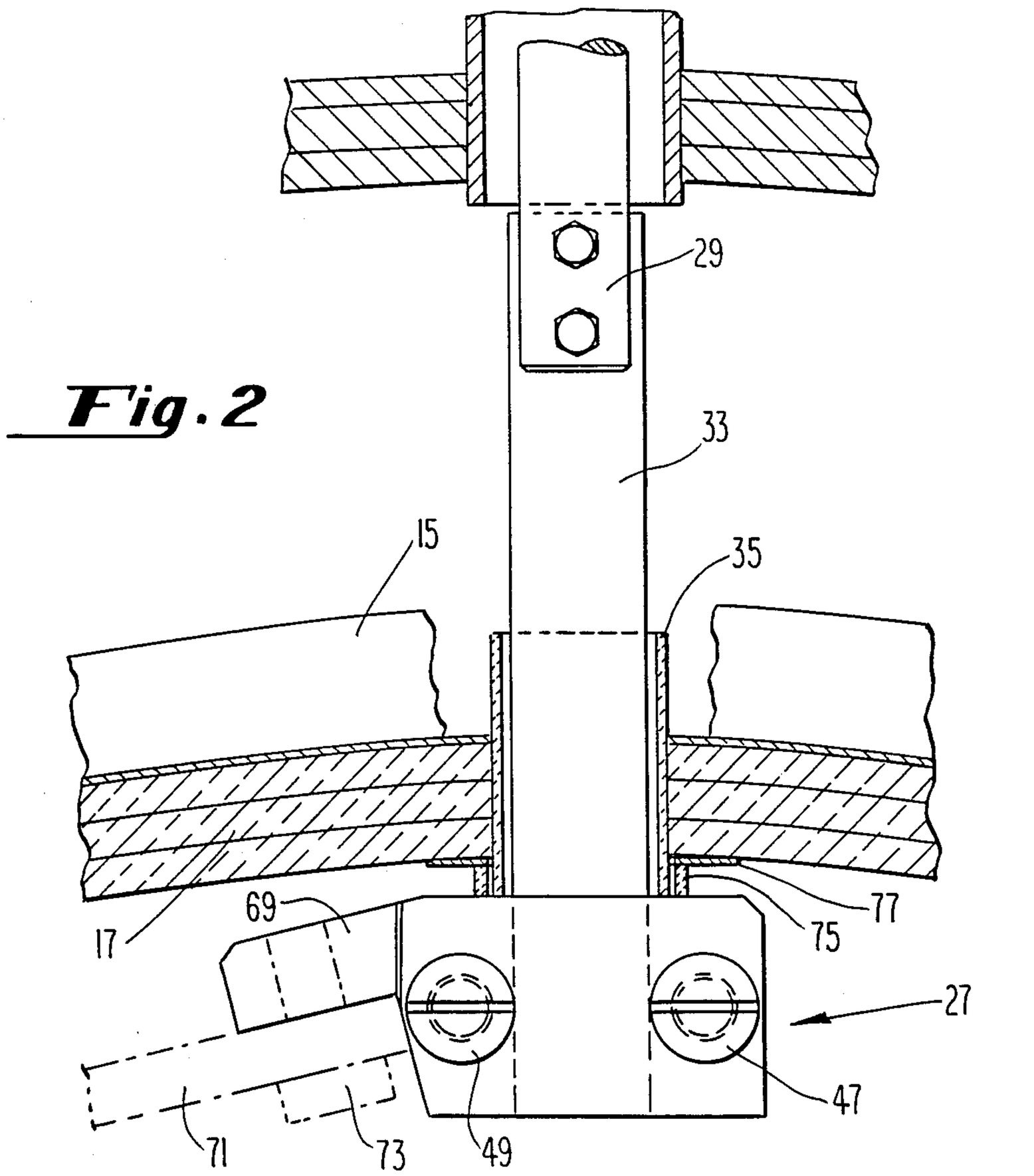
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Fig. 2

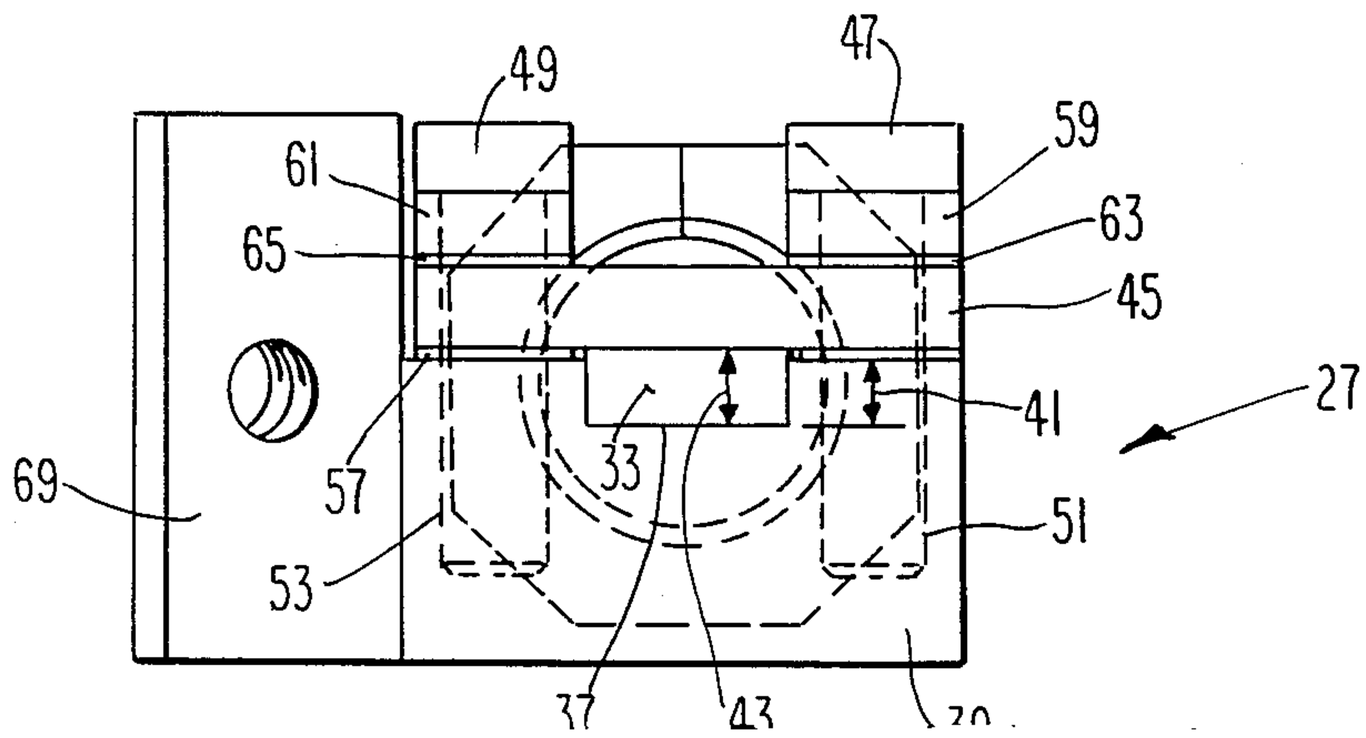
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Fig. 3

HOT ZONE EMPLOYING GRAPHITE HEATING ELEMENTS

BACKGROUND OF THE DISCLOSURE

In the design of vacuum furnace systems common-

while at the same time does not permit the graphite bolt to work its way into a "loose" condition.

SUMMARY OF THE DISCLOSURE

The present arrangement is directed to employing graphite members instead of molybdenum members as hot zone structure. Graphite material is rugged and not

spacer and through the second aperture in the keeper, it can be threaded into the second threaded aperture in the block and thus the keeper is "tightened up" against the molybdenum rod which is located in the channel. It should be noted that there is a graphfoil washer (lami- 5 nated graphite) located between the first molybdenum

one of which is shown at **19**. Inside of the vacuum furnace, as just described, there is located a hot zone. The hot zone is made up of the graphite heating elements **21** as well as the graphite periphery ring support members **23**. In addition to the graphite periphery ring support members **23**, there are two special support members

spacer and the keeper. Note also that there is also a

namely the bridging support member 25 and the power

[illegible] washers 63 and 65 also provide resil- [illegible] heating element 21B is a laminated graphite washer 115

with said second washer means disposed between said first heating element and said first protrusion; third and fourth washer means formed of laminated graphite with said third washer means disposed between said second bolt means and said second heating element and with said fourth washer means disposed between said second heating element and said second protrusion means.

2. A section of a graphite hot zone according to claim 1 wherein said first and second securing apertures are threaded apertures respectively in said first and second protrusions.

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