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Resonant Chambers for Suspending Material in Air

In several of the recently-developed resonant chambers, the acoustical pressure of a standing wave is used to suspend materials inside them. They can be used for studying the superfluidity of helium (He II) drops or for keeping materials inside them from touching the chamber walls.

There are two chamber configurations. One is a spherical glass resonator, as shown in Figure 1, with a single acoustical driver. Bits of Styrofoam are shown suspended inside. The other configuration is a

rectangular plastic chamber, as shown in Figure 2, with three acoustical drivers which provide acoustical pressure in three mutually orthogonal directions.

In both cases, the material is driven to the standing-wave antinodes where the pressure is the lowest. The pressure at the nodes is the greatest, which prevents the suspended material from collecting there. The material can be moved inside the chambers by changing the wave patterns.

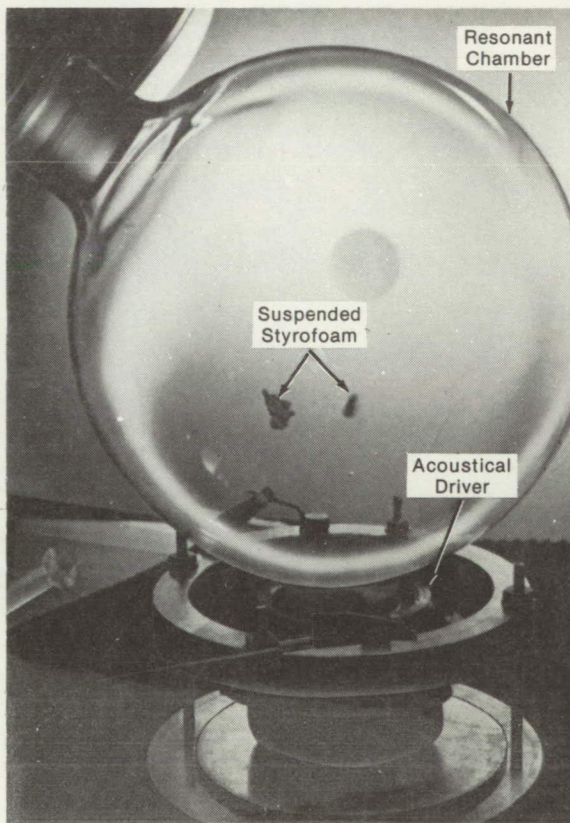


Figure 1. Spherical Resonator

(continued overleaf)

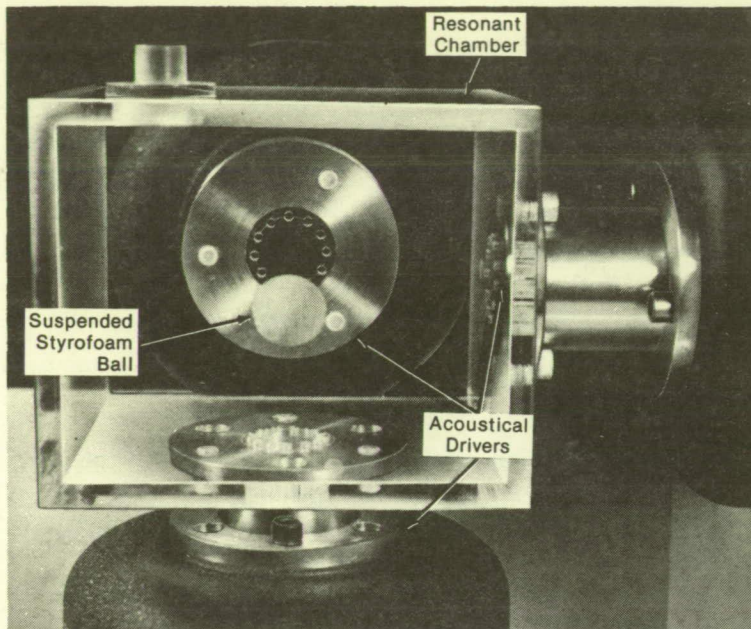


Figure 2. Rectangular Plastic Chamber

Note:

Requests for further information may be directed to:

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Reference: TSP75-10050

Patent status:

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