



[54] SINGLE PATH RADIAL MODE CORIOLIS MASS FLOW RATE METER

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Related U.S. Application Data

[63] Continuation of Ser. No. 843,519, May 8, 1992, abandoned, and Ser. No. 651,301, Feb. 5, 1991, abandoned.

[51] Int. Cl.<sup>5</sup> ..... G01F 1/78

[52] U.S. Cl. .... 73/861.37; 73/861.18

[58] Field of Search ..... 73/861.37, 861.38, 861.18

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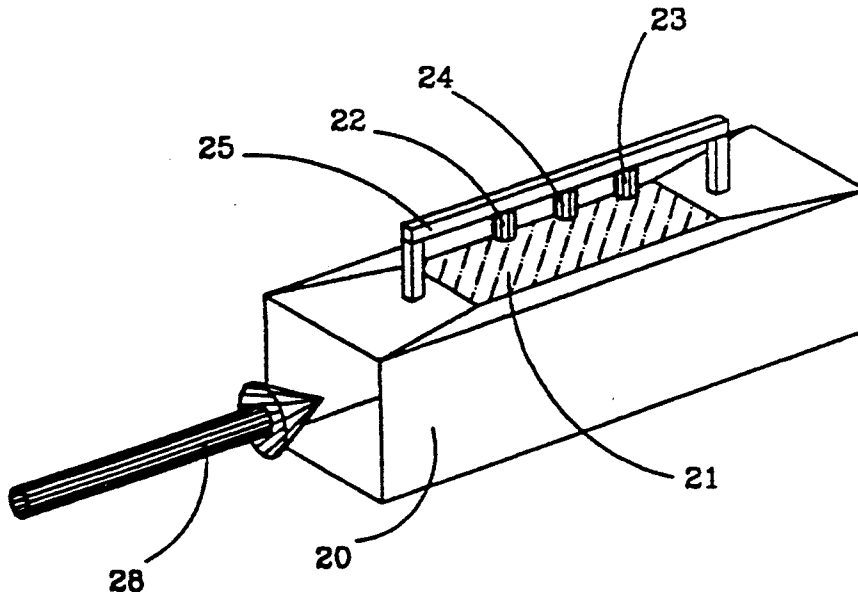
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[57] ABSTRACT

A flow meter apparatus for measuring the mass flow rate of a fluid using the Coriolis principle. A single straight flow conduit is employed which is vibrated in a radial-mode of vibration. Coriolis forces are thereby produced along the walls of the flow conduit which deform the conduit's cross-sectional shape as a function of mass flow rate. Additional embodiments are disclosed employing vibration of selected portions of the flow conduit walls. In addition, a method is described to determine the pressure and the density of a fluid by simultaneously vibrating a flow conduit in two modes of vibration and thereby determining pressure and density based on changes in each frequency.

38 Claims, 27 Drawing Sheets



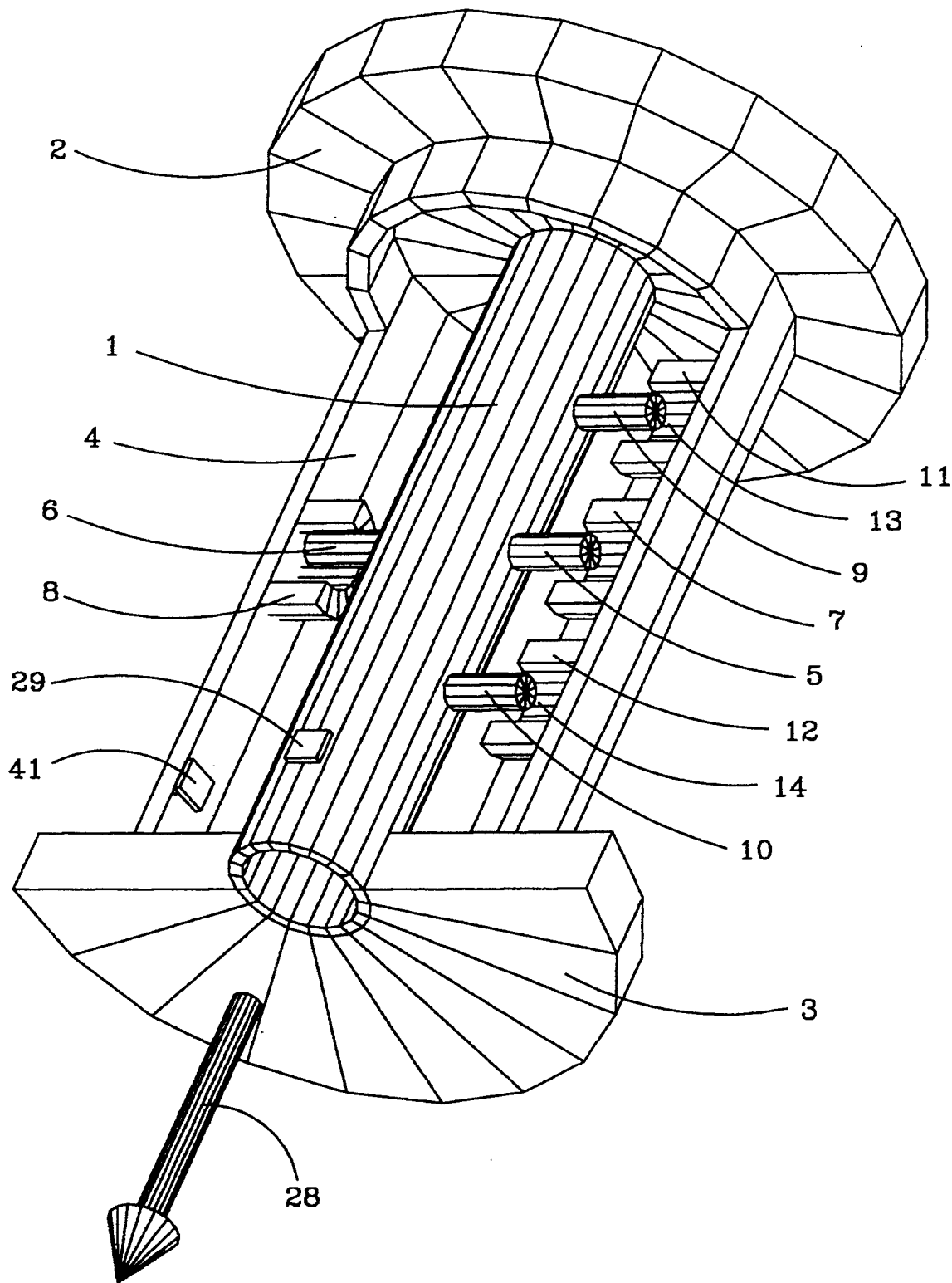


FIG. 1

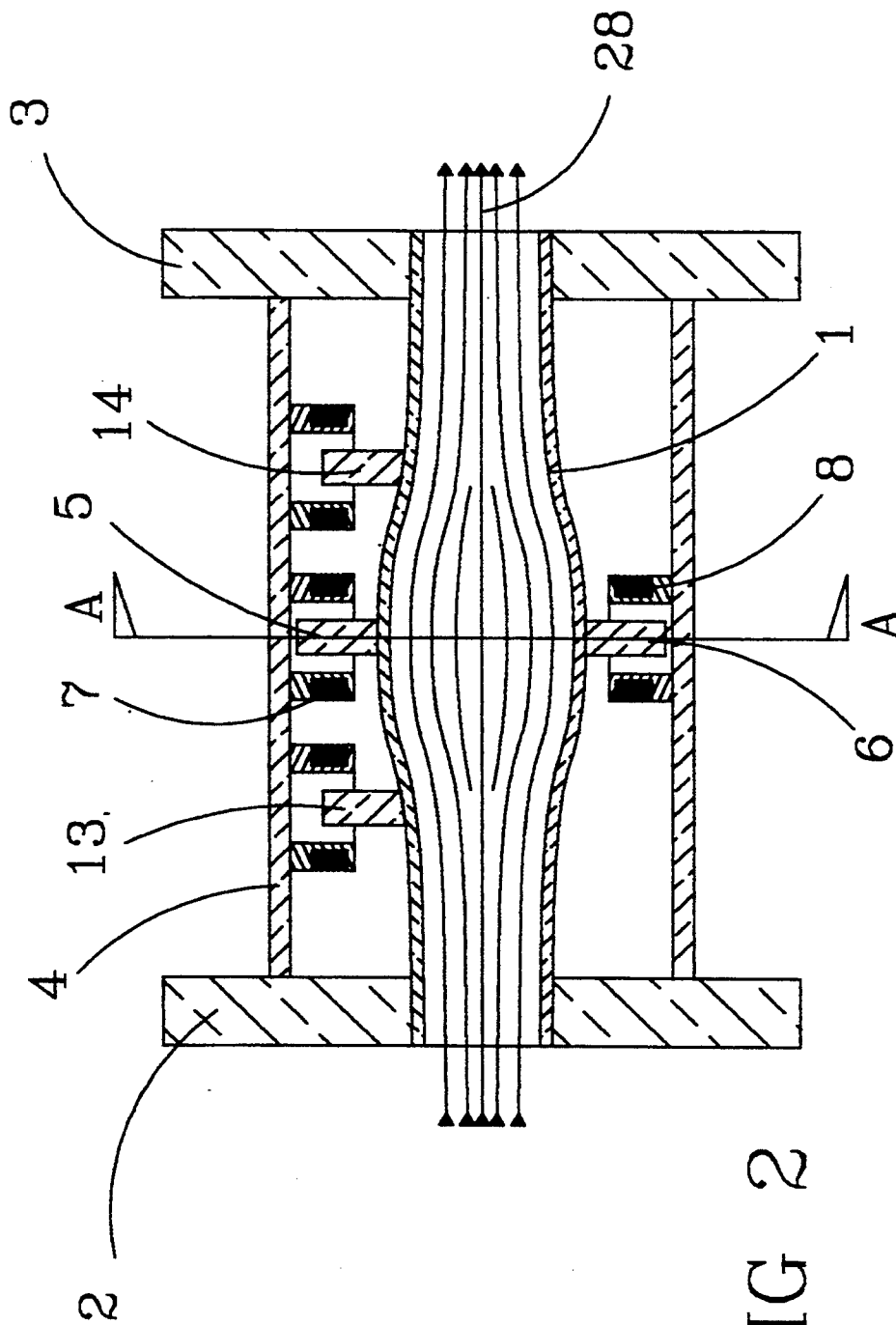


FIG 2

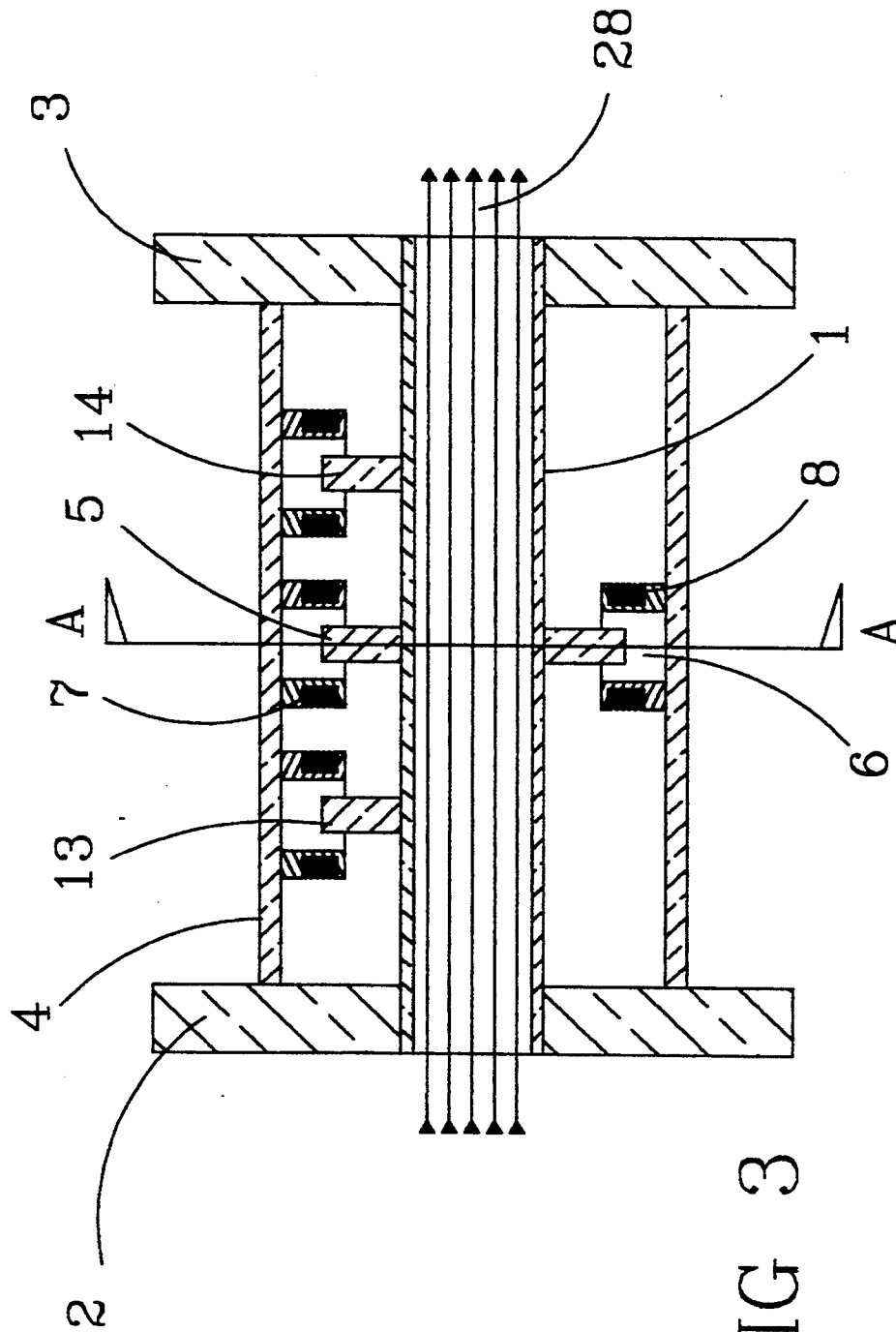


FIG 3

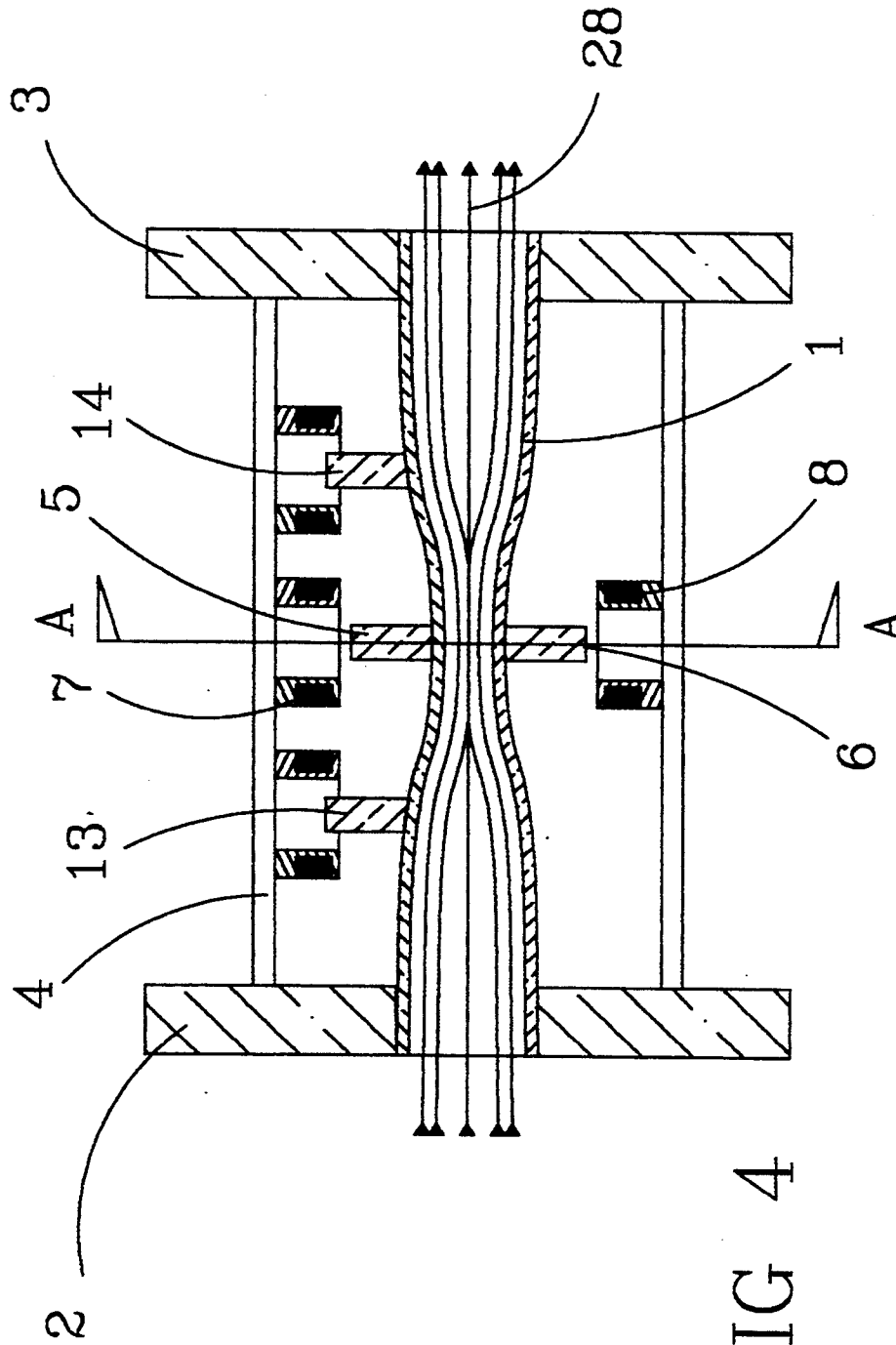


FIG 4

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