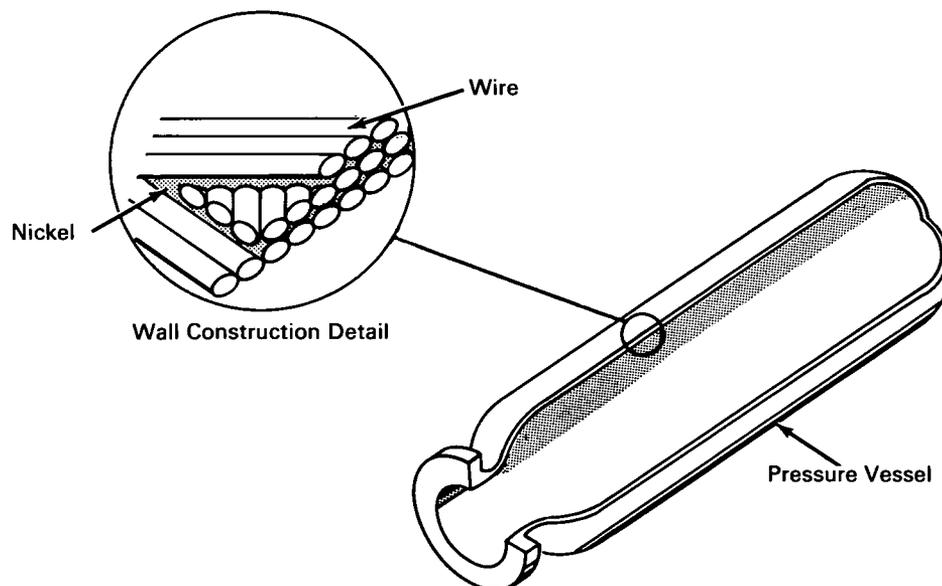


NASA TECH BRIEF



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Pressure Vessels Fabricated with High-Strength Wire and Electroformed Nickel



The problem:

The present method of fabricating metal pressure vessels is to weld formed segments together. This produces vessels with nonuniform wall thickness and unequal wall strength, especially in the area of the welds, resulting in relatively low strength-to-weight ratios.

The solution:

By using known techniques of filament winding and electroforming, pressure vessels of various shapes having high strength-to-weight ratios can be fabricated.

How it's done:

Successive layers of ultra-high-strength wire and nickel are formed on a molded pattern of the desired size and shape of the pressure vessel until a calculated uniform wall thickness with appropriate ultimate strength is reached. The molded pattern is then re-

moved and the inside is electroplated to provide a complete integral seal over the initial winding of the ultra-high-strength wires. A joining metal flange may then be machined to the required configuration.

Note:

This development is in the conceptual stage only, and as of the date of publication of this Tech Brief, neither a model nor prototype has been constructed.

Patent status:

No patent action is contemplated by NASA.

Source: Benjamin Roth
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