

curves of thermopile output for the temperature differences may be plotted against time, the apparatus being allowed to return to a stable initial temperature before each plot is begun. The thermal masses of block 75 and 76 are so great that their temperature is practically constant during the plotting of any individual curve.

Next shaft 73 is turned, to pivot drum 70 about axis 72 so as to lower chamber 24 and raise chamber 25, until the electrolyte flows from chamber 25 to chamber 24, covering battery components 40 and helices 47 and 48, and the cell is restored to level position. The chamber volumes are identical, the heater volume is made close to that of the battery components, and the volume and thermal characteristics of the electrolyte are unchanged, so that calibration curves are meaningful as applied to chamber 24. When a selected load is applied to the now operative battery cell, the relationship of the resulting thermopile outputs to those previously recorded is a readily interpretable indication of the heat generated internally in the battery cell in response to the load thereon.

Numerous characteristics and advantages of the invention have been set forth in the foregoing description, together with details of the structure and function of the invention, and the novel features thereof are pointed out in the appended claims. The disclosure, however, is illustrative only, and changes may be made in detail, especially in matters of shape, size, and arrangement of parts, within the principle of the invention, to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

I claim:

1. In a calorimeter:

- (a) a thin sample container having opposite faces of large area with respect to the thickness of the container, cover means for closing said container in liquid-tight relation, and terminal means carried by said cover means for making electrical connections therethrough, said container being separated by a narrow partition extending between said faces into first and second narrow chambers having surfaces which make up the faces of said container, said partition being of less height than said container;
- (b) a pair of heat sinks having faces apposed to the faces of said container;
- (c) a pair of thermopiles having first faces thermally engaging said faces of said container, and second faces thermally engaging said faces of said heat sinks, whereby to conduct heat from said container to said sink and give electrical outputs determined by the flow of said heat; and
- (d) the nonliquid components of an electrochemical cell mounted in one of said chambers connected to said terminal means.

2. Apparatus according to claim 1, together with a charge of battery electrolyte in one of said chambers, and the nonliquid components of a battery cell in the other said chamber and connected to said terminal means.

3. Apparatus according to claim 2 and an electric heater in said one of said chambers and connected to said terminal means independently of said nonliquid components.

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