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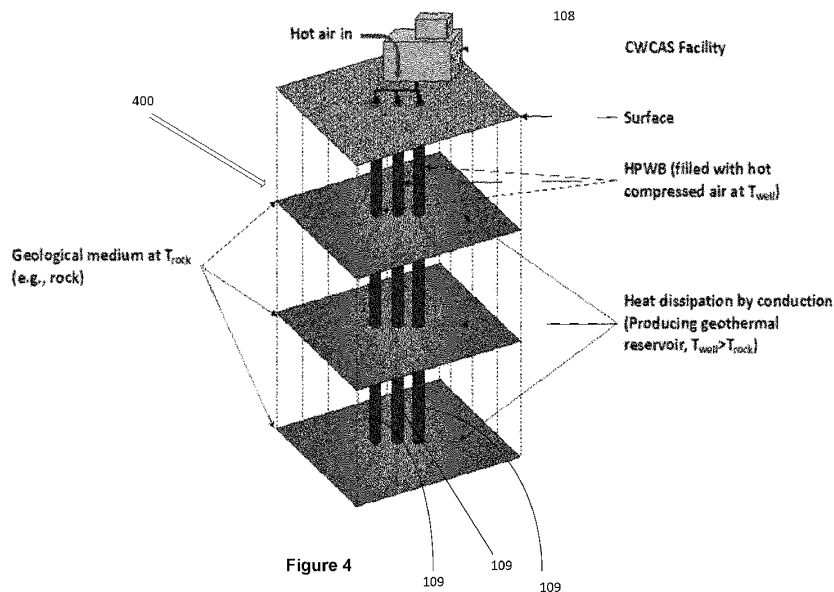


Figure 4

(57) Abstract: Systems and methods for recovery, storing and utilizing heat energy during compressed gas energy storage are disclosed. In an example, a system for storing energy in a form of compressed gas, comprising: one or more energy storage vessels for storing compressed gas, said energy storage vessels each comprising: a wellbore provided in a subsurface; and a casing placed within the wellbore and cemented to a surrounding geological medium, the casing defining a volumetric space for storing the compressed gas; and a geothermal reservoir formed at the surrounding geological medium of the one or more energy storage vessels for underground thermal energy storage, wherein a portion of thermal energy of the compressed gas stored in the one or more storage vessels is conductively transferred to, via the one or more storage vessels, the surrounding geological medium, and stored in the surrounding geological medium.

[Continued on next page]

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