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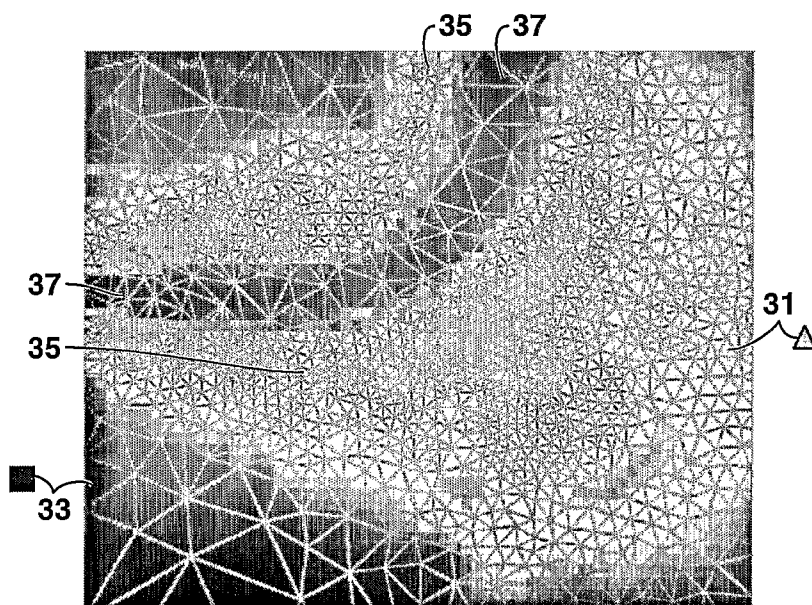
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
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[Continued on next page]

(54) Title: HYDRODYNAMICS-BASED GRIDGING GEOLOGIC MODELING (HYDRO-GRIDGING)



(57) Abstract: The method for creating geologic subsurface models using hydrodynamics-based gridding (Hydro-Grids) for subsurface volumes and reservoirs (35). Wherein, the vertical grid surfaces are chosen in an unstructured fashion to provide lateral resolution as needed (31). The lateral grid surfaces created represent surfaces of constant geological time based on simulations of the depositional processes of the subsurface volume. The geologic properties are specified within each cell created by the intersections of the vertical and lateral surfaces. The geologic data includes the seismic data, the outcrop studies data and well log data and core data and numerical data, and modeling data and interpreted stratigraphic surfaces based on seismic data. The modeled geologic properties of the subsurface volume include the grain size distribution, the

connectivity, and the net to gross data, the porosity, the permeability and the pore pressure.



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