

Ex. PGS 1055

[54] METHOD FOR DETERMINING THE POSITION OF SEISMIC STREAMERS IN A REFLECTION SEISMIC MEASURING SYSTEM

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[52] U.S. Cl. 367/19

[58] Field of Search 367/6, 19, 129, 130

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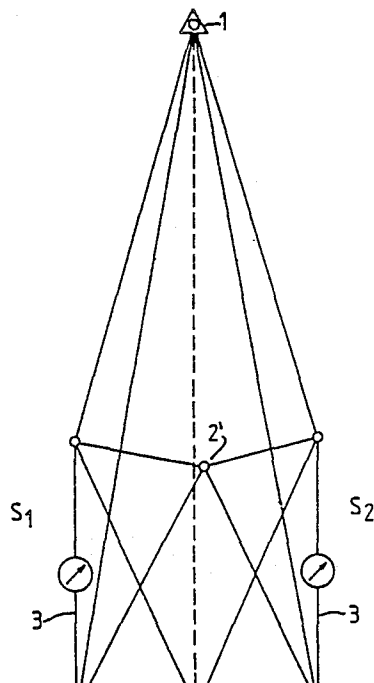
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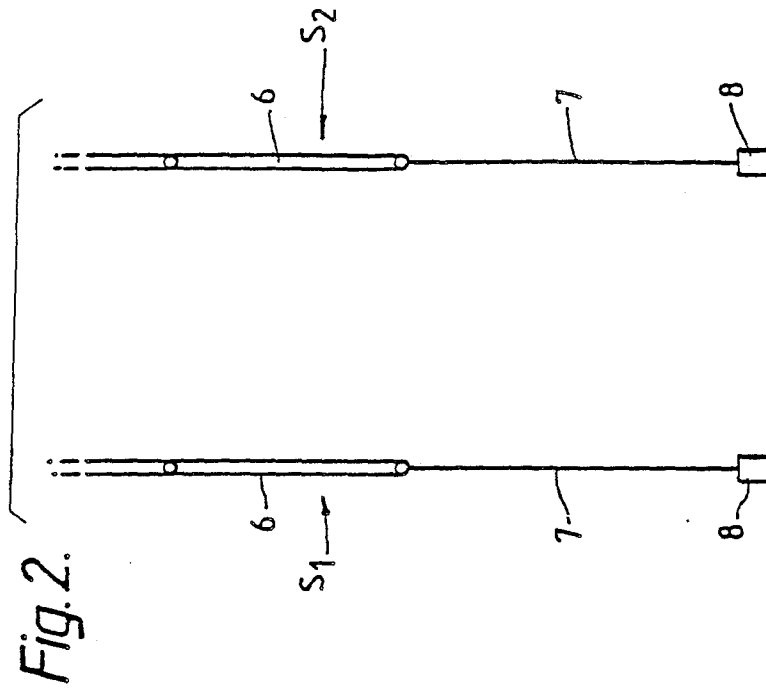
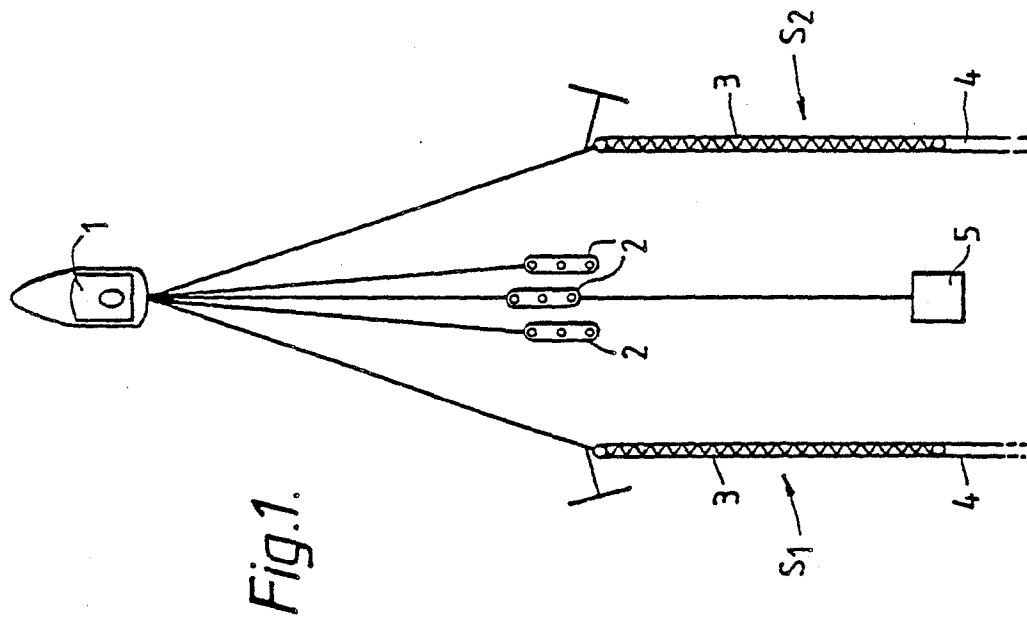
Attorney, Agent, or Firm—Fleit, Jacobson, Cohn, Price, Holman & Stern

[57] ABSTRACT

A method for determining the position of at least two seismic streamers (S1, S2) in a reflection seismic measuring system, wherein hydroacoustic distance measurements are used which are taken by means of acoustic transceivers provided in vessels (1), buoys (8), floats (5), seismic sources (2) and in the seismic streamers (S1, S2). Absolute reference positions are determined by position determining equipment provided in at least two locations, for instance, on a vessel (1) or a float (5). The acoustic transceivers and the position determining equipment form a three-dimensional structure. The position determination takes place by trilateration between the acoustic transceivers and the determination of at least two reference positions so that there is no dependency on compass bearings or optical visibility, and high redundancy is obtained. The method is particularly suited for application in connection with three-dimensional marine seismic surveys. The method may be integrated with suitable surface navigation systems in order to find the reference positions and provide absolute positions at any point within a marginal error of 5 to 10 m.

18 Claims, 5 Drawing Sheets





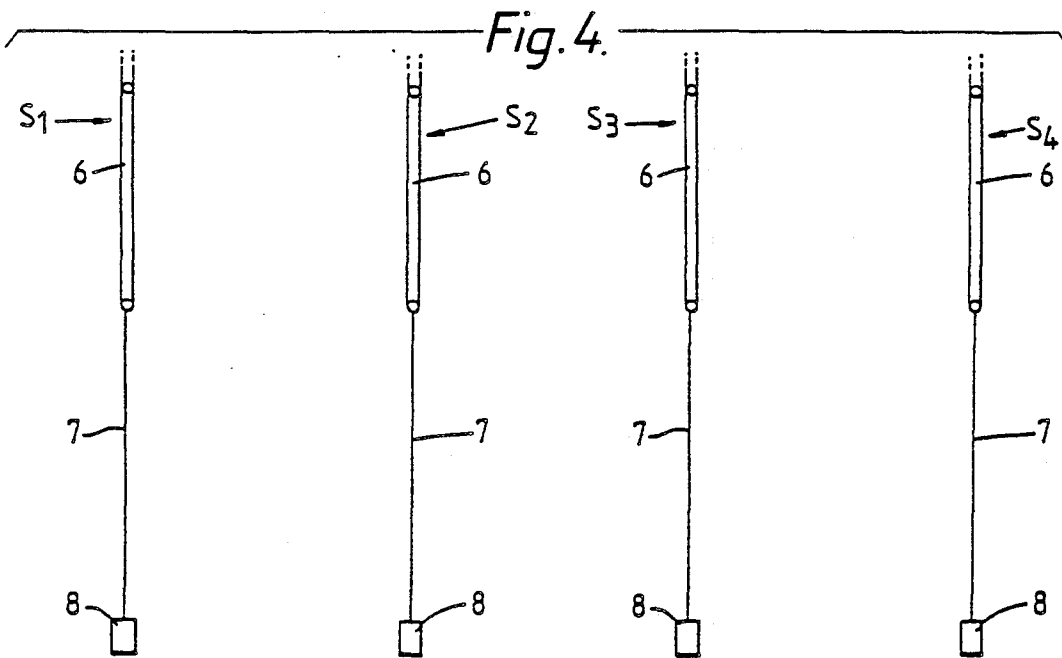
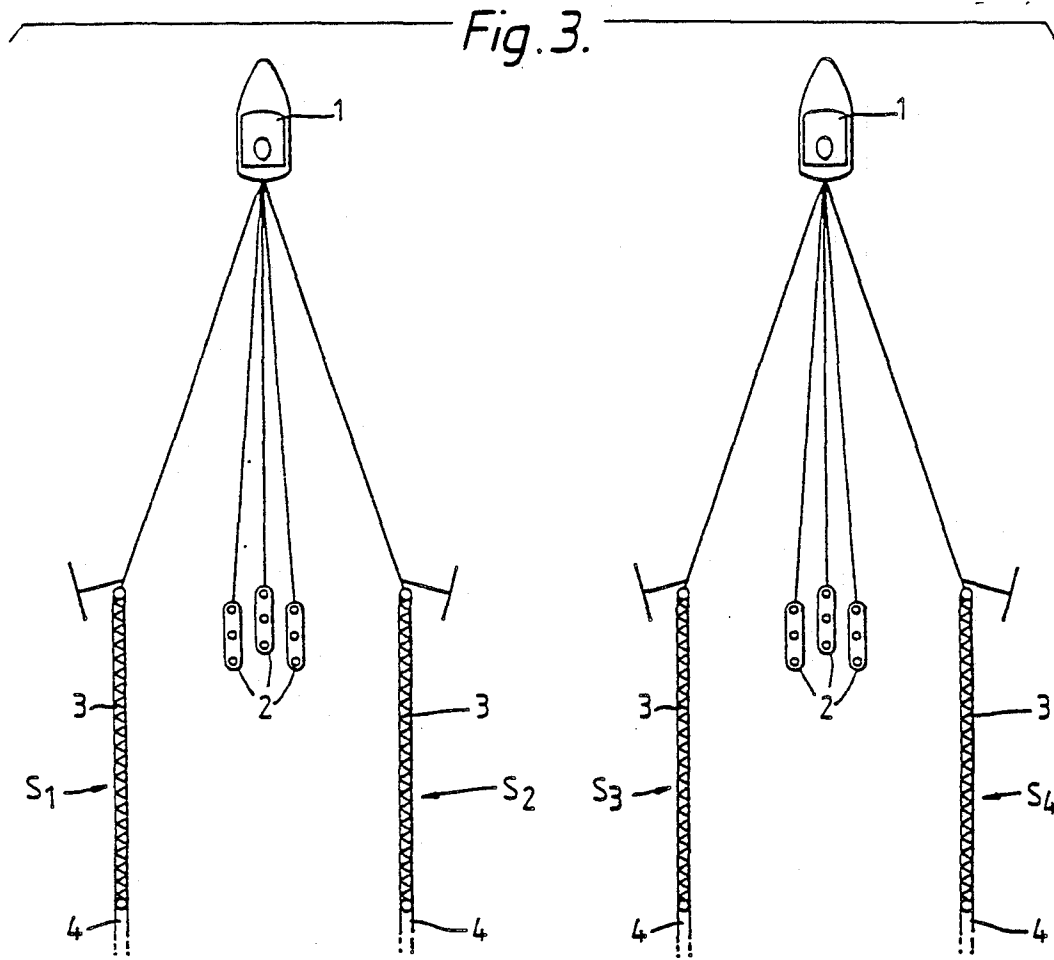


Fig. 6.

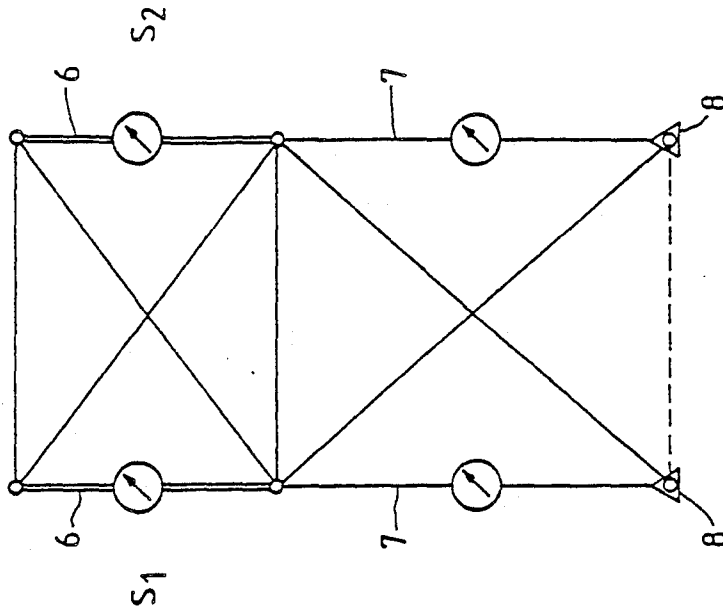
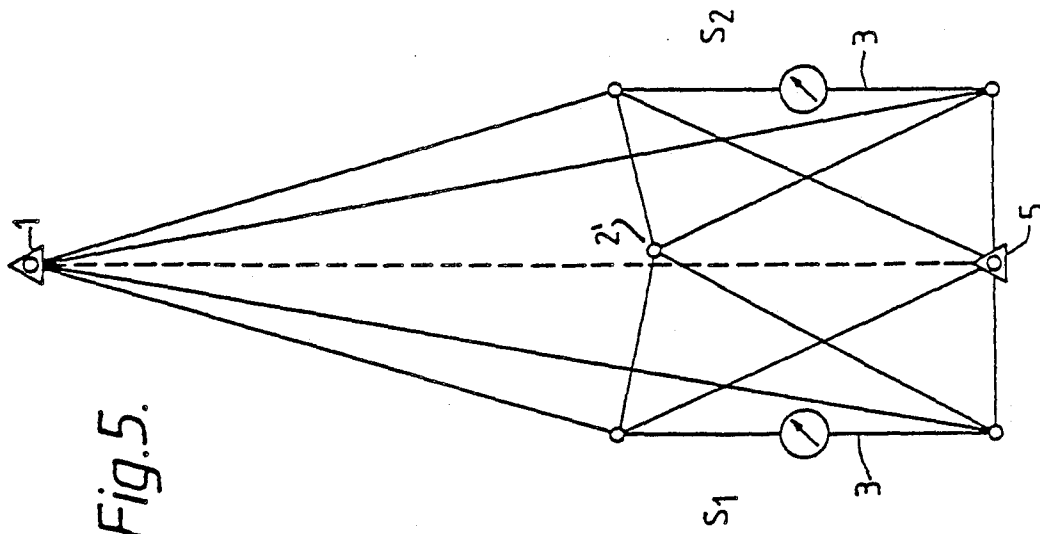


Fig. 5.



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