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(54) **TEST CHIP WITH PLUG FOR MEASURING THE CONCENTRATION OF AN ANALYTE IN A LIQUID, HOUSING FOR TEST CHIP AND SOCKET FOR PLUG**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,506,554 A 4/1970 Broome
4,242,194 A 12/1980 Steiner et al.

(Continued)

FOREIGN PATENT DOCUMENTS

CA 2737892 9/2003
DE 20 2005 009 960 9/2005

(Continued)

OTHER PUBLICATIONS

Japanese Official Action issued in Application No. 2009/537484 on May 12, 2011.

(Continued)

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(57) **ABSTRACT**

Measurement device (10) for taking a liquid sample, comprising: a measurement portion (15) with a measurement surface (20), for being in use contacted with the liquid surface and a plug portion (40) having a plurality of electrical contacts (50), wherein the plug portion (40) is mountable to a socket (110) of a measurement evaluation apparatus (100).

27 Claims, 8 Drawing Sheets

