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(54) **FIRE PREVENTION SELF-CALIBRATING REMOTE SENSING SYSTEM AND METHOD THEREOF**

(57) A LIDAR or DIAL fire detector for measuring the concentration of a product of combustion, comprising a laser source and a calibration system to calibrate an absorption cross-section of a sample of a product of combustion in real time. Said system comprises a chamber, comprising a first and a second optical window. In a first configuration, where the chamber contains a sample of the combustion product, the chamber receives a first optical signal through the first optical window and passes a second optical signal through the second optical win-

dow. In a second configuration, where the sample is absent, the chamber receives a third optical signal, generated by the optical source, through the first optical window and passes a fourth optical signal through the second optical window. The absorption cross-section is calculated on the basis of a ratio between a first ratio between the intensities of the fourth and the third optical signals and a second ratio between the intensities of the second and the first optical signals, as to cancel the effect of the optical windows.

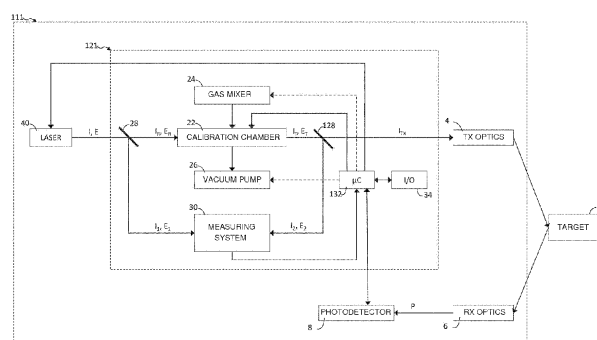


Fig. 8