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(54) Title: OPTICAL IMAGING SYSTEM WITH MULTIPLE IMAGING CHANNEL OPTICAL

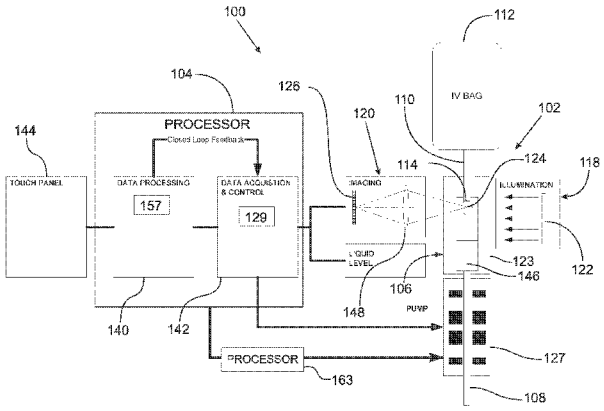


Fig. 2

(57) Abstract: An optical imaging system for use with an infusion tube including: at least one light source for emitting at least two of first, second, or third spectrums of light; an optics system including a single lens for receiving and transmitting at least two of the first spectrum light transmitted through a first portion of the chamber, the second spectrum light transmitted through a second portion of the chamber, or the third spectrum light transmitted through a third portion of the chamber. The system includes a sensor receiving the at least two of the spectrums from the lens and generating and transmitting data characterizing the at least two of the spectrums. The system includes a memory element storing computer readable instructions and a processor to execute the instructions to generate, using the data, at least two of first, second, or third images of the first, second, and third portions, respectively.