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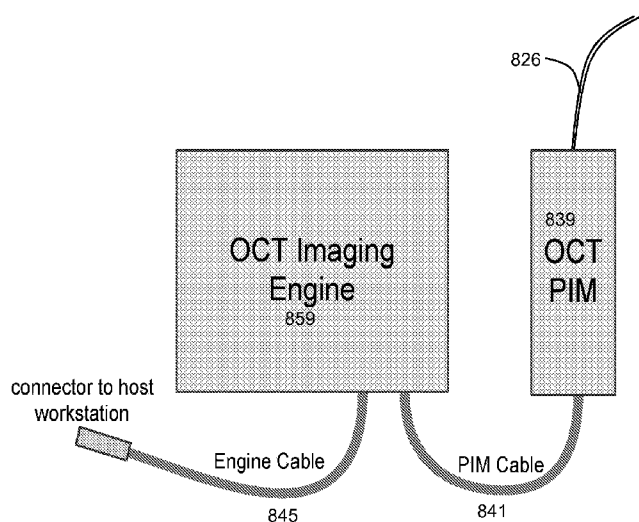
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(54) Title: AUTOMATIC STENT DETECTION

FIG. 3



(57) **Abstract:** This invention relates generally to the detection of objects, such as stents, within intraluminal images using principal component analysis and/or regional co variance descriptors. In certain aspects, a training set of pre-defined intraluminal images known to contain an object is generated. The principal components of the training set can be calculated in order to form an object space. An unknown input intraluminal image can be obtained and projected onto the object space. From the projection, the object can be detected within the input intraluminal image. In another embodiment, a covariance matrix is formed for each pre-defined intraluminal image known to contain an object. An unknown input intraluminal image is obtained and a covariance matrix is computed for the input intraluminal image. The covariances of the input image and each image of the training set are compared in order to detect the presence of the object within the input intraluminal image.

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2013/063524

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61B 6/12 (2014.01)

USPC - 600/431

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8) - A61B 6/00, 6/02, 6/03, 6/12, 8/00, 8/13, 8/14, 8/15 (2014.01)

USPC - 382/100, 128, 131; 600/407, 431, 437, 443

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

CPC - A61B 6/50, 6/504, 8/0891, 8/13, 8/52, 8/5215 (2013.01)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PatBase, Google Patents, Google

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2005/0147303 A1 (ZHOU et al) 07 July 2005 (07.07.2005) entire document	1-16, 18-23, 25-30, 32-37, 39, 40, 42
Y	US 2009/0034813 A1 (DIKMEN et al) 05 February 2009 (05.02.2009) entire document	17, 24, 31, 38, 41
Y	US 2009/0034813 A1 (DIKMEN et al) 05 February 2009 (05.02.2009) entire document	17, 24, 31, 38, 41
A	US 2012/0130243 A1 (BALOCCO et al) 24 May 2012 (24.05.2012) entire document	1-42
A	US 2008/0187201 A1 (LIANG et al) 07 August 2008 (07.08.2008) entire document	1-42
A	US 2010/0284590 A1 (PENG et al) 11 November 2010 (11.11.2010) entire document	1-42



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"&amp;" document member of the same patent family

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