CLAIMS

1. A pipeline inspection device stabilizer apparatus for use with a pipeline inspection device configured to assess the condition of a pipeline while being carried by a moving liquid in the pipeline, the device including an inspection module, the apparatus comprising a front spacer configured to be secured in front of the inspection module and a rear spacer configured to be secured behind the inspection module, each of the front spacer and the rear spacer configured to move between a collapsed position close to the device and an outward position extending away from the device and towards the pipeline wall, wherein when in the outward position the front and rear spacers are configured to contact the pipeline wall to distance the inspection module from the pipeline wall and maintain axial alignment or substantial axial alignment of the inspection module with the longitudinal center of the pipeline; and a forward member configured for mounting the front spacer thereto and a rear member configured for mounting the rear spacer thereto, wherein the front and rear spacers comprise a plurality of independently moveable whiskers secured around the circumference of the forward member and the rear member.

2. The apparatus of claim 1 or 2 wherein the front spacer and the rear spacer are biased in the outward position and configured to move into the collapsed position upon application of a sufficient amount of inward force to overcome the bias.

3. The apparatus of claim 1 wherein the whiskers are configured to pivotally move between the outward position to the collapsed position in either the forward or the rear direction.

4. The apparatus of claim 1 or 3 wherein the whiskers are resilient along at least a portion of its length to enable the whisker to resiliently bend when contacting the pipeline wall.

5. The apparatus of any one of claims 1 to 4 wherein the whiskers comprise steel or fiberglass.

6. The apparatus of any one of claims 1 to 5 wherein there are at least 6 whiskers, 12 whiskers, or 16 whiskers.

7. The apparatus of any one of claims 1 to 6 further comprising a plurality of pivot arms disposed circumferentially around the forward and rear members, wherein each one of the plurality of pivotal arms is configured to secure each one of the plurality of independently moveable whiskers.

8. The apparatus of claim 7 further comprising forward and rear push arms, forward and rear springs, and forward and rear arm pusher rings, wherein one end of each push arm is secured to the pivot arm and the other end of the push arm is secured to one of the pair of arm pusher rings, wherein forward movement of one of the plurality of independently moveable whiskers moves the pivot arm in the forward direction which causes the forward pusher arm to push the forward pusher ring to resiliently compress the forward spring and wherein rearward movement of one of the plurality of independently moveable whiskers moves the pivot arm in the rearward direction which causes the rear pusher arm to push the rear pusher ring to resiliently compress the rear spring.

9. A pipeline inspection device configured to assess the condition of a pipeline while being carried by a moving liquid in the pipeline, the device comprising:

   an inspection module for optically, electromagnetically, and/or ultrasonically assessing the condition of the pipeline; and

a pipeline inspection device stabilizer apparatus, the apparatus comprising:

a front spacer configured to be secured in front of the inspection module and a rear spacer configured to be secured behind the inspection module, each of the front spacer and the rear spacer configured to move between a collapsed position close to the device and an outward position extending away from the device and towards the pipeline wall, wherein when in the outward position the front and rear spacers are configured to contact the pipeline wall to distance the inspection module from the pipeline wall and maintain axial alignment or substantial axial alignment of the inspection module with the longitudinal center of the pipeline; and

a forward member configured for mounting the front spacer thereto and a rear member configured for mounting the rear spacer thereto, wherein the front and rear spacers comprise a plurality of independently moveable whiskers secured around the circumference of the forward member and the rear member.

10. The device of claim 9 wherein the front spacer and the rear spacer are biased in the outward position and configured to move into the collapsed position upon application of a sufficient amount of inward force to overcome the bias.

11. The device of claim 9 wherein the whiskers are configured to pivotally move between the outward position to the collapsed position in either the forward or the rear direction.

12. A method for assessing the condition of a pipeline using a pipeline inspection device configured to assess the condition of a pipeline while

being carried by a moving liquid in the pipeline, the device including an inspection module, the method comprising:

securing a front spacer in front of an inspection module for optically, electromagnetically, and/or ultrasonically assessing the condition of the pipeline, wherein the front spacer is mounted on a forward member and the front spacer comprises a plurality of independently moveable whiskers secured around the circumference of the forward member;

securing a rear spacer to the rear of the inspection module, the front and rear spacers are configured to move between an inward position close to the device to an outward position away from the device, wherein the rear spacer is mounted on a rear member and the rear spacer comprises a plurality of independently moveable whiskers secured around the circumference of the rear member;

deploying the inspection module into a liquid-containing pipeline such that when the spacers are moved into the outward position and towards the pipeline wall so as to contact the pipeline wall, the front spacer and the rear spacer distance the inspection module from the pipeline wall and maintain axial alignment or substantial axial alignment of the inspection module with the longitudinal center of the pipeline; and

assessing, using the inspection module, the condition of the pipeline along the pipeline length as the device is carried through the pipeline by the moving liquid.

13. The method of claim 12 wherein the assessing is for pipeline defects by ultrasonic detection.

14. The method of claim 13 wherein the pipeline defects are one or more of liner delamination, ovality changes, air pockets, internal debris, and metallic wall loss.

15. The method of any one of claims 12 to 14 wherein the substantial axial alignment is within about 3% of the longitudinal center of the pipeline.