than pathway **2**, and so a smaller amount of fluid may pass through pathway **102**, and this may increase the pressure of fluid that is moving through pathway **102**.

[0043] FIG. **4**A is a schematic view of apparatus **10**, where valve **14** (shown in phantom along with handle **14**A) is in its sample preparation orientation. When valve **14** is in its sample preparation position, valve **14** closes off fluid flow pathways **19** and **23** between central housing segment **15** and second and fourth housing segments **18** and **22**, respectively, as at flow restrictor locations **119** and **123**. This forms a first flow path through central housing segment **15**. Specifically, the first flow path is formed from first housing segment **16** through central housing segment **15** and to third housing segment **20**. Therefore, first housing segment **16**, central housing segment **15**, and third housing segment **20** are in fluidic communication with one another when valve **14** is in its sample preparation position. In an alternate embodiment, the sample preparation position is comprised of two or more separate valve **14** positions. This embodiment will be described below. In the exemplary embodiment, pathways **19** and **23** are closed off using a rib/notch system described in FIGS. **2**A-**2**C. In alternate embodiments, other suitable means of restricting flow in pathways **19** and **23** are used.

[0044] FIG. **4**B is a schematic view of apparatus **10**, where valve **14** (shown in phantom along with handle **14**A) is in its testing orientation. As shown, valve **14** has been rotated in a counterclockwise direction to move from the sample preparation orientation (FIG. **4**A) to the testing orientation (FIG. **4**B). In the testing orientation, valve **14** closes off fluid pathways **17** and **21** between central housing segment **15** and first and third housing segments **16** and **20**, respectively, as at flow restrictor locations **117** and **121**, while at the same time opening up pathways **19** and **23** between central housing segment **15** and second and fourth housing segments **18** and **22**, respectively. This forms a second flow path through central housing segment **15**. Specifically, the second flow path is formed from third housing segment **20** through central housing segment **15** and to second housing segment **18**. Those skilled in the art will recognize that the inventive apparatus utilizing a valve may have any suitable number of flow paths. Furthermore, any suitable mechanism for forming a plurality of flow paths through apparatus **10** may be substituted for valve **14** in alternate embodiments. In an alternate embodiment, the testing position is comprised of two or more separate valve **14** positions. This embodiment will be described below.

[0045] In the exemplary embodiment, pathways **17** and **21** are closed off using a rib/notch system described in FIGS. **2**A-**2**C. In alternate embodiments, other suitable means of restricting flow in pathways **17** and **21** are used. Furthermore, in alternate embodiments, valve **14** does not necessarily need to close pathway **17** because if apparatus **10** is positioned so that gravity flows in direction g, fluid will not likely flow up pathway **17**.

[0046] Extension tube **16**A may be a separate tube which is sealably coupled to an opening **26** in first housing segment **16**, or may be integrally formed with housing segment **16**. In one embodiment, extension tube **16**A is formed from a polymer (e.g., polyethylene) and is transparent.

[0047] Returning now to FIG. **1**, first housing segment **16** and extension tube **1** **6**A are configured to receive sample acquisition assembly **3**, which includes sample acquisition device **5** and first fluid reservoir **8**. Specifically, sample acquisition assembly **3** is received in opening **26**A of extension tube **16**A and is preferably in close conforming contact with opening **26**A so that opening **26**A is substantially covered by sample acquisition assembly **3**. Sample acquisition device **5** may be any suitable device, such as a swab. Examples of suitable sample acquisition devices are described in U.S. Pat. No. 5,266,266, entitled, "SPECIMEN TEST UNIT", and U.S. Patent Application Ser. No. 60/705,140, entitled, "APPARATUS AND METHOD FOR COLLECTING A SAMPLE OF MATERIAL," (Attorney Docket No. 61097US002) which was filed on the same date as the present application. In the exemplary embodiment, it is preferred that sample collection device **5** include hollow shaft **7**, having first end **7**A and second end **7**B opposite first end **7**A, and porous medium **6** attached to first end **7**A of hollow shaft **7**. Porous medium **6** of sample acquisition device **3** may be placed in contact with a sample source, such as a nose, ear, or throat of a person, or a food preparation surface, and a sample may then adhere to porous medium **6**. By introducing sample acquisition device **5** into opening **26**A, a sample is introduced into apparatus **10**.

[0048] The exemplary first fluid reservoir **8** retains a first fluid **9**, which may be a buffer solution. Examples of suitable first fluid reservoirs include, but are not limited to, a deformable squeeze bulb, a syringe, or an accordion pleat bulb. The structure of the reservoir **8** (or some other feature on the sample acquisition assembly **3**) is larger than opening **26**A, thus preventing overinsertion of sample acquisition assembly **3** into extension tube **16**A and first housing segment **16**. The length of extension tube **16**A is greater than the length of the hollow shaft **7** of the sample acquisition assembly **3**, thus preventing the porous medium **6** from contacting an inner end of first housing segment **16**. In fact, when the sample acquisition assembly is fully inserted into extension tube **16**A to contact opening **26**A, the porous medium **6** is spaced from the inner end of the first housing segment **16**. Extension tube **16**A thus provides a larger reservoir for buffer solution after it has been released from reservoir **8** into extension tube **16**A and first housing segment **16** (larger than first housing segment **16** alone), and spaces the porous medium **6** from any fluid **9** which may pool in the first housing segment **16** and extension tube **16**A.

[0049] The type of buffer solution that is to be incorporated into the assay is dependent upon many factors, including the analyte that apparatus **10** is configured to detect. First fluid reservoir **8** is attached to second end **7**B of the hollow shaft. First fluid reservoir **8** is positioned to be in selective fluidic communication with hollow shaft **7** of sample acquisition device **5**. "Selective fluidic communication" indicates that there is a valve, plunger (such as in a syringe) or other apparatus operator-activated means of introducing first fluid **9** disposed in first fluid reservoir **8** into hollow shaft **7** of sample acquisition device **5**. Releasing first fluid **9** into hollow shaft **7** of sample acquisition device **5**, elutes a sample adhered to porous medium **6**, rendering an eluted sample.

[0050] In accordance with the exemplary embodiment of the present invention, the sample is eluted from porous medium **6** of sample acquisition device **3** when valve **14** is in its sample preparation position. In the sample preparation position, a sample of material is prepared for detection. As previously stated, in the sample preparation stage of the exemplary assay, an analyte is isolated from the sample of material and in the exemplary embodiment, the analyte isolation is completed while valve **14** is in its sample preparation position. Specifically, capture medium **24** (shown in phantom