recessed opening **894**. Thus, the recessed opening **894** is fluidically connected to the conduit **892** and the drain tube **853**.

[0141] The body **891** may be fabricated from plastic (e.g., polypropylene, polyethylene, polytetrafluoroethylene) by molding, for example. The body **891** is shaped and dimensioned to fit in a housing (e.g., housing **710** of FIG. **7**A). In any embodiment, the body **891** or the O-ring **886** can form a substantially liquid-tight seal with the walls of a housing when the body **891** is inserted into the housing. In any embodiment that includes an O-ring, **886**, the O-ring **886** may function both to form a liquid-tight seal and to wipe particulate material (e.g., cell concentration agents) off the wall of the housing as the O-ring **886** is moved in relation to the wall of the housing. The shaft **851** may be coupled to the conduit **892** by means that are known in the art (e.g., by an adhesive, by press-fit). The optional O-ring **886** is disposed in a notch **889** in the body **891**.

[0142] The tip **890** further comprises a filter **896**. The filter **896** is coupled to the body **891** at the recessed opening **894**. In the illustrated embodiment, the filter **896** is formed from a porous material, which can be press-fit and/or adhesively coupled to the recessed opening **894**. In some embodiments, the porous material can be semi-rigid porous material (e.g., POREX filtration medium sold under the part number X6854 by Porex Corporation, Fairburn, Ga.). The filter **896** may be configured with a relatively angular or pointed end, such that the end can facilitate the penetration of a frangible seal. In alternative embodiments (not shown), the filter may comprise a membrane filter that is coupled to the body. When coupled to the body, the membrane filter is part of a fluid path that includes the conduit and a drain channel.

[0143] In some embodiments, the porosity of the filter **896** may be selected such that the filter **896** prevents only the passage of relatively large particles (e.g., >1 μm, >5 μm, or >10 μm,) through it. Relatively large particles may include, for example, cell concentration agents as described herein. In these embodiments, microorganisms such as bacteria, yeast, and/or filamentous fungi (mold) may pass through the filter **896**.

[0144] In some embodiments, the porosity of the filter **896** may be selected such that the filter **896** prevents only the passage of relatively small particles (e.g., <1 μm, <0.45 μm, <0.2 μm,) through it. In these embodiments, microorganisms such as bacteria, yeast, and/or filamentous fungi (mold) may be retained by the filter **896**.

[0145] The tip **890** may further comprise an optional one-way valve **897** disposed in the recessed opening **894** between the filter **896** and the conduit **892**. Also shown is an optional retaining washer **898** that can serve to hold the one-way valve **897** in position. The one-way valve **897** may be constructed from plastic (e.g., polypropylene, polyethylene, polyester) or rubber, for example, and may be configured as a duck-bill valve, for example. In use, the one-way valve **897** substantially prevents the flow of liquid that has passed through the filter **896** from returning through the filter **896** in the opposite direction.

[0146] FIG. **8**B shows a side view, partially in section of the assembled tip **790** of FIG. **7**A. The one-way valve **897**, optional retaining washer **898**, and filter **896** are disposed in the recessed opening and are in fluidic connection with the conduit **892** and the drain tube **853**. The shaft **851** is coupled to the body **891** of the tip **890**.

[0147] Referring back to FIG. **7**A, the detection device **700** comprising the housing **710** and plunger **750** is used in a method to detect microorganisms and, in particular, live microorganisms.

[0148] In use, a liquid sample is transferred into the upper receptacle **720** of the housing **710**, where it is allowed to contact a cell concentration agent **730**. After adding the liquid sample **740** to the housing **710**, the tip **790** of the plunger **750** is inserted into the housing **710** and urged (e.g., manually or mechanically) toward the lower receptacle **724** of the housing **710**, as shown in FIG. **7**B. As the tip **791** of the plunger **750** contacts the liquid sample **740**, the liquid passes through the tip **790**, through the drain tube **753**, and into the hollow shaft of the plunger **750**, as shown in FIG. **7**B. This process retains the cell concentration agent **730** and, in some embodiments, free microorganisms in a portion **742** of the liquid sample proximate the third receptacle **726**.

[0149] As the tip **790** of the plunger **750** penetrates the frangible seal **760***a*, not shown, the portion **742** of the liquid sample containing the cell concentration agent **730** contacts the hydrogel **762**. Further movement of the plunger **750** (as shown in FIG. **7**D) causes penetration of the frangible seal **760***b*, which causes the portion **742** of the liquid sample and the hydrogel **762** to transfer to the lower receptacle **724**, where they contact the detection reagent **765**.

[0150] Devices of the present disclosure include frangible seals in a housing. The frangible seals are pierced to transport the cell concentration agent from one compartment of the device to another compartment. In some embodiments, the amount cell concentration agent transferred in that process can be enhanced by collecting the cell concentration agent onto a relatively area of the frangible seal. FIG. **9** shows one embodiment of a collector **967** to enhance the recovery of cell concentration agent. The collector **967** is dimensioned to fit within the housing of a detection device according to the present disclosure. The collector **967** comprises a beveled edge **968** that is oriented toward the sample comprising a cell concentration agent (not shown). Typically, the beveled edge **968** faces upward such that it collects particles that are settling by the force of gravity. Alternatively, the beveled edge **968** could be oriented toward a centrifugal or a hydrodynamic force, for example, to collect particles subjected to forces other than gravity. The collector **967** further comprises an optional frangible seal **969**.

[0151] The collector **967** can be fabricated from a variety of materials including, for example a polymer (e.g., polyester, polypropylene, polytetrafluoroethylene, polypropylene, polystyrene, nylon, and combinations and derivatives thereof), glass, and metal. The collector **967** may further comprise a lubricious coating to resist the adherence of particles to its surface. The beveled edge **968** may be angled (e.g. a 45-degree angle, a >45-degree angle) to facilitate the movement of particles down its slope. The frangible seal **969** is fabricated as described herein and may be coupled to the collector **967** by means that are described herein.

[0152] FIG. **10**A shows one embodiment of a detection device **1000** comprising a collector **1067**. The device **1000** comprises a housing **1010** and a plunger **1050**. The housing **1010** comprises an upper part **1012** and a lower part **1014**. Disposed within the upper part **1012** and proximate the lower part **1014** is a collector **1067** with a frangible seal **1069** coupled thereto. The frangible seal **1069** is coupled to the side of the collector **1067** that is facing the lower part **1014**. Thus,