

openings 24. The one-way valve can have any suitable configuration. For example, in some examples, the plurality of sidewall openings 24 comprise a duckbill valve, a slit valve, or a flexible flap positioned at one or more (e.g., all) of the sidewall openings of the plurality of sidewall openings. In some examples, the one-way valve does not protrude axially outward from outer catheter 12. For example, the one-way valve may be flush with or below an exterior surface of outer catheter 20. In this way, an exterior surface of outer catheter 20 may be relatively smooth and/or free of protrusions such that the valves may not catch on, for example, the vasculature of the patient or cause unwanted turbulence or flow resistance through outer catheter lumen 16.

**[0069]** In some examples, the plurality of sidewall openings may be configured to open in response to a differential pressure between outer catheter lumen 16 and inner catheter lumen 20 (i.e., a difference between a positive pressure in outer catheter lumen 16 and a negative pressure in inner catheter lumen 20) being greater than or equal to a predetermined differential pressure threshold value. For example, prior to engagement of a thrombus at inner catheter distal opening 22, it may be desired for a majority of aspiration fluid to be delivered through outer catheter distal opening 18 into a volume outside outer catheter distal opening 18 near the thrombus and through inner catheter distal opening 22 from suction in inner catheter lumen 20. However, once the thrombus is engaged with inner catheter 14 and blocking inner catheter distal opening 22, the differential pressure between outer catheter lumen 16 and inner catheter lumen 20 may increase. For example, the thrombus may block flow of aspiration fluid from outer catheter lumen 16 into inner catheter lumen 20, causing an increase in either or both a positive pressure in outer catheter lumen 16 or a negative pressure in inner catheter lumen 20. Once the differential pressure is greater than or equal to the predetermined differential pressure threshold, fluid may flow from outer catheter lumen 16 and/or the volume outside outer catheter distal opening 18 into inner catheter lumen 20.

**[0070]** In some examples, the plurality of sidewall openings 24 may have different differential pressure thresholds. For example, sidewall openings 24 that are more likely to be positioned outside outer catheter distal opening 18 may have a lower differential pressure threshold than sidewall openings that are more likely to be positioned within outer catheter distal opening 18, such that a flow of fluid through sidewall openings closer to the thrombus is higher than flow of fluid further away from the thrombus. The differential pressure threshold for a particular sidewall opening 24 may be selected according to a variety of factors including, but not limited to, expected arterial blood