

## CLAIMS

1. A delivery device for delivering an instrument through an intravenous catheter, comprising:

a housing having an outlet;

a rotary element disposed within the housing, the rotary element having a groove extending around at least a portion of a circumference of the rotary element; and

an instrument disposed within the groove and between the rotary element and the housing, wherein in response to rotation of the rotary element with respect to the housing, the instrument is advanced distally through the outlet.

2. The delivery device of claim 1, wherein the instrument comprises a guidewire.

3. The catheter system of claim 2, wherein a proximal end of the guidewire is secured within the delivery device.

4. The delivery device of claim 1, wherein the instrument comprises a probe.

5. The delivery device of claim 1, wherein the instrument comprises tubing.

6. The delivery device of claim 1, wherein the instrument comprises a light tube.

7. The delivery device of claim 5, wherein a proximal end of the tubing is configured to be coupled to a blood collection device.

8. The delivery device of claim 7, further comprising a connector coupled to a top or bottom of the rotary element and additional tubing coupled to the connector.

9. The delivery device of claim 8, wherein the additional tubing extends from the top or the bottom of the rotary element at a central axis of rotation of the rotary element.

10. The delivery device of claim 1, wherein the groove extends inwardly from the circumference toward a central axis of rotation of the rotary element.

11. A catheter system, comprising:
  - a catheter assembly, comprising:
    - a catheter adapter; and
    - a catheter having a distal end, wherein the catheter extends distally from the catheter adapter; and
  - a delivery device coupled to the catheter assembly, comprising:
    - a housing;
    - a rotary element disposed within the housing, the rotary element having a groove extending around at least a portion of a circumference of the rotary element; and
    - the instrument disposed within the groove and between the rotary element and the housing, wherein in response to rotation of the rotary element with respect to the housing in a first direction, a distal end of the instrument is disposed a first amount beyond the distal end of the catheter, wherein in response to rotation of the rotary element with respect to the housing further in the first direction, the distal end of the instrument is disposed a second amount beyond the distal end of the catheter, wherein the second amount is greater than the first amount.
12. The catheter system of claim 11, wherein the instrument comprises a guidewire.
13. The catheter system of claim 12, wherein a proximal end of the guidewire is secured within the delivery device.
14. The catheter system of claim 11, wherein the instrument comprises a probe.
15. The catheter system of claim 11, wherein the instrument comprises tubing.
16. The catheter system of claim 11, wherein the instrument comprises a light tube.

17. The catheter system of claim 15, wherein a proximal end of the tubing is configured to be coupled to a blood collection device.
18. The catheter system of claim 15, further comprising additional tubing extending from a top or bottom of the rotary element.
19. The catheter system of claim 18, wherein the additional tubing extends from the top or the bottom of the rotary element at a central axis of rotation of the rotary element.
20. The catheter system of claim 11, wherein the groove extends inwardly from the circumference.
21. A method, comprising:
  - rotating a rotary element with respect to a housing in a first direction, wherein the rotary element is disposed within the housing, wherein the rotary element comprises a groove extending around at least a portion of a circumference of the rotary element, wherein in response to rotating the rotary element with respect to the housing in the first direction, a distal end of an instrument advanced beyond a distal end of catheter, wherein the instrument is disposed within the groove.
22. The method of claim 21, wherein the instrument comprises blood draw tubing, further comprising withdrawing blood through the blood draw tubing.
23. The method of claim 21, further comprising rotating the rotary element with respect to the housing in a second direction opposite the first direction, wherein in response to rotating the rotary element with respect to the housing in a second direction opposite the first direction, the distal end of the instrument is retracted.