To all whom it may concern:

Be it known that I, Richard P. McCully, a citizen of the United States, residing at Brooklyn, in the county of Kings, State of New York, have invented certain new and useful Improvements in Catheters or Like Instruments, of which the following is a full, clear, and exact description.

My invention relates to surgical instruments, and particularly to catheters and the like.

The particular class of catheters to which this invention relates is that class in which one passage is provided through which fluid, medicated or otherwise, may be injected and another passage through which the fluid may be drawn off or drained.

The main object of my invention is to provide a new and useful construction which will facilitate the ready and thorough cleansing of both the outgoing and return passage.

My invention is not confined to any particular use, as will hereinafter be seen. My purpose is to so construct articles of this kind that without radically departing from the conventional design the internal construction shall be such that thorough cleansing and sterilizing of the passages through said instrument may be effected.

In the drawings, Figure 1 is a view, partly in elevation and partly in longitudinal section, of a catheter of one type. Fig. 2 is a modification thereof. Fig. 3 is a relatively enlarged sectional view of the forward end of the catheter shown in Fig. 1. Fig. 4 is a relatively enlarged sectional view of the rear end of the catheter shown in Fig. 2. Fig. 5 is a relatively enlarged sectional view of the forward end of the catheter shown in Fig. 2. Fig. 6 is a similar view of a modification. Fig. 7 is an elevation, mainly in longitudinal section, of another modification. Fig. 8 is a cross-section of an instrument of my invention.

The body of the catheter is in external appearance substantially cylindrical and comprises in the particular construction shown two half-round tubes A A', suitably secured together at their flat sides, so that said flat sides will form a partition or dividing-wall in the main body portion. When used as a drain-catheter, it is preferred that the cross-sectional area of the passage through the half-round tube A shall be smaller than the cross-sectional area of the passage through the half-round tube A'.

In the form shown in Fig. 1 the catheter illustrated is of the drain type in which a suitable injection of fluid is passed through the half-round tube A and out through the tip or nozzle B, of any suitable construction, and returned through the tube A', a suitable inlet-port C being provided. Inasmuch as the fluid returned or drained off is likely to be in excess of the fluid introduced, I prefer that the capacity of the passage A' shall be greater than the capacity of the passage through the section A. The supply is therefore introduced at the end D, and the fluid drawn off passes out through the outlet E, which is preferably spaced apart sufficiently from the end D. The body of the catheter may be straight or curved in any of the usual ways, depending largely upon the use for which the instrument is intended.

In Fig. 2 I have shown the tube A provided with an outlet in its side at the forward end, said outlet being indicated by the letter B. The inlet C is formed in the tube A' in a manner similar to that shown in Fig. 1; but a plug F closes the extreme inner ends of both the tubes A, A' beyond said openings B, C.

In Fig. 1 a plug F may close the tube A' beyond the openings C, thus preventing the injected fluid from returning directly through the tube A' before passing out through the opening in the nozzle B. In Fig. 6 I have shown a modification in which no opening is provided in the tubes. In this modification the tubes are indicated by the letters A, A'. Such instruments correspond generally to 90 catheters, excepting that they may be used for cooling purposes, a continuous stream of cold water being passed through the tube A and returning through the tube A'; otherwise the construction may be similar to that shown in Figs. 1 and 2.

In Fig. 7 the instrument is particularly adapted for the proper cleansing of the ear, in which it is not essential in all cases to curve the end of the instrument. In this figure the inlet or injection pipe is indicated by the letter A, and the exhaust or return pipe indicated by the letter A'. The nozzle end of the instrument shown in Fig. 7 may be varied at
will. In all of the instruments shown it will be seen that the thing in common to them is the construction of the body portion in which the supply and drain passages are entirely separate and distinct, and it will be seen that in cleansing the instrument in this construction a bit of whalebone or other suitable material may be passed directly through either of the passages, so that any foreign substance may be readily removed. This is a feature of construction which I deem very valuable, in that it facilitates the cleansing of the instrument. Modern surgery requires thorough cleansing of the instrument both externally and internally, and by this construction it is possible to attain that end in a manner most satisfactory.

If desirable, the tips at the forward end of the instrument may be made removable—for example, as shown in Fig. 3, in which, it will be seen, the tip is secured to the body of the instrument by means of screw-threads.

What I claim is—

1. A surgical instrument of the character described comprising, two half-round tubes secured together at their flat sides and forming an inlet-passage extending through the instrument and a return-passage lying adjacent to and to one side of said inlet-passage.

2. In a surgical instrument of the character described, comprising a pair of half-round tubes secured together at their flat sides and forming an inlet-passage and a return-passage lying adjacent to and to one side of said inlet-passage, said inlet-passage having an outlet at the inner end of the instrument and said return-passage having an inlet at the inner end of said instrument.

3. In a surgical instrument of the character described, comprising a pair of half-round tubes secured together at their flat sides and forming an inlet-passage extending there-