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R. J. LIMBERT

2,340,068

CATHETER

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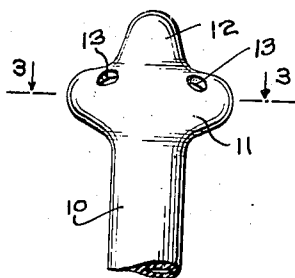


Fig. 1

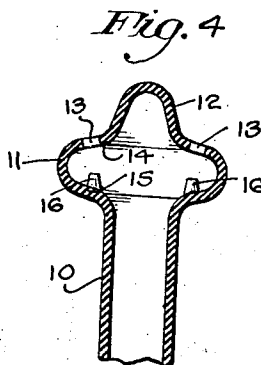


Fig. 4

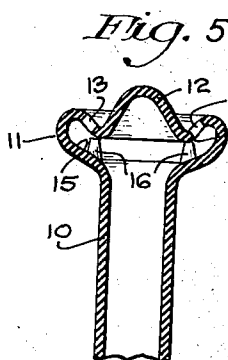


Fig. 5

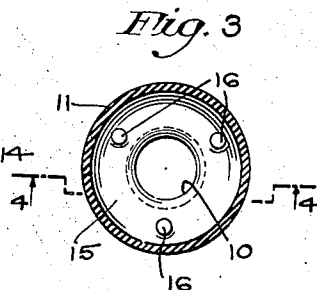


Fig. 3

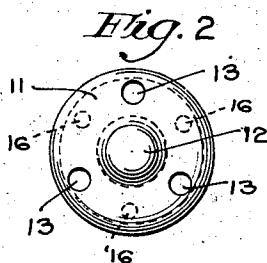


Fig. 2

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1 Claim. (Cl. 128—349)

This invention relates to an improved construction of self-retaining surgical drain or catheter made of rubber or the like, it being among the principal objects of this invention to provide the catheter with means for insuring against such total collapse of the catheter head as would interfere with proper drainage when the catheter is inserted in position for use.

Other objects and advantages of the invention will be apparent hereinafter, it being understood that the present invention consists substantially in the combination, construction, location and relative arrangement of parts all as described more fully hereinafter, as shown in the accompanying drawing and as finally pointed out in the appended claim.

In the accompanying drawing, which illustrates a preferred embodiment of the present invention—

Figure 1 is a side elevational view of the headed end of a catheter constructed in accordance with and embodying the principles of the present invention;

Figure 2 is an end view thereof;

Figure 3 is a transverse sectional view taken on the line 3—3 of Figure 1;

Figure 4 is a longitudinal sectional view; and

Figure 5 is a longitudinal sectional view showing the head of the catheter depressed.

Referring now to the drawing and more particularly to Figures 1 to 4 thereof, it will be observed that the catheter of the present invention includes the conventional flexible tubular stem 10, one end of which terminates in a bulbous shaped head 11 having an imperforate axially extending tip 12. The wall of the head immediately surrounding the base of the tip 12 is provided with a plurality of circumferentially spaced apertures 13 which communicate with the bore of the stem 10 so that when the catheter is inserted head end first into the body cavity to be drained of fluids, the latter will be free to pass through the openings 13 and into the stem for external discharge thereby.

It is often the case that when the catheter is inserted into the body, the tip 12 thereof is axially depressed, in consequence of which the walls 14 and 15 are relatively so collapsed that free passage of the fluid into the catheter stem by way of the openings 13 is interfered with, if not entirely interrupted. To prevent the happening of this contingency, the catheter, as constructed in accordance with the present invention, is provided interiorly of the head 11 with means which prevent such total collapse of the head as would interfere with the free drainage of the fluid therethrough. This means is in the form of a plurality of protuberances 16 which are formed as integral elements on the wall 15 of the catheter head. These elements, which extend toward the perforated wall 14, each terminate short of the latter wall and are so circumferentially spaced with reference to the spacing of the apertures 13 that when the tip 12 of the catheter is depressed, as shown in Figure 5, the elements 16 engage imperforate portions of the wall 14 and maintain the latter in spaced relation with respect to the wall 15. Consequently, even when the catheter head is collapsed to the limit permitted by the elements 16, the fluid to be drained from the body is still free to pass through the openings 13 and about the spacing elements 16 for subsequent discharge by way of the tubular stem 10.

It will be understood, of course, that variations and modifications may be made of the present invention without departing from the principles thereof. Thus, the spacing elements 16 may be formed as integral elements on the wall 14 instead of on the wall 15 of the catheter head, in which event they would be spaced between the drainage openings 13. Also, the invention is not necessarily limited in its application to the closed end type of catheter shown in the drawing, but may in fact be employed as well in the open-end type of catheter which is characterized by the absence of the conical tip shown in the drawing hereof. In this open-end type of catheter the tubular stem terminates in an enlarged annular head of generally channeled shape, the drainage openings being located in or adjacent to the marginal rim of the head. In such case, the spacing elements hereinbefore referred to would be formed integrally on one or the other of the axially spaced walls of the channel to prevent total collapse thereof and to maintain the drainage openings in free communication with the bore of the catheter stem. It will be understood, therefore, that the present invention is intended to be claimed broadly, as well as specifically, as indicated in the appended claim.

What is claimed as new and useful is:

As an article of manufacture, a catheter having an enlarged head formed integrally with a tubular stem, said head being characterized in that it is provided with an annular portion of substantially channel shaped cross section having opposed walls normally maintained in axially spaced relation, said annular portion being provided with a plurality of circumferentially spaced apertures, and axially projecting elements formed on one of said walls interiorly of the catheter head and adapted to engage imperforate portions of the opposite wall to prevent direct contact of said walls with each other upon collapse of the catheter head.

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