

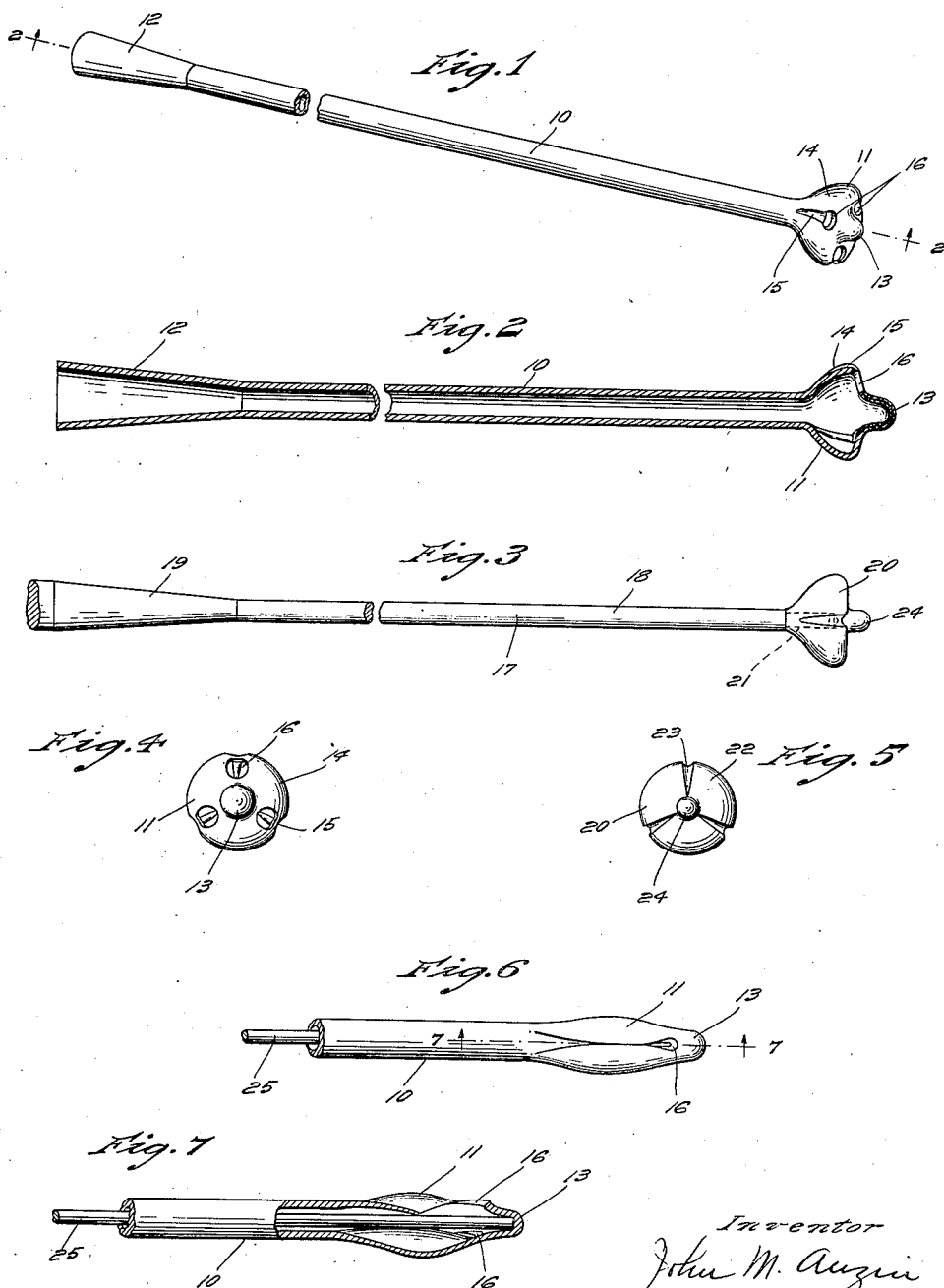
Feb. 4, 1941.

J. M. AUZIN

2,230,226

CATHETER AND ITS MANUFACTURE

Filed March 14, 1938



Inventor
John M. Auzin
By
Nothamil Frucht
Attorney

UNITED STATES PATENT OFFICE

2,230,226

CATHETER AND ITS MANUFACTURE

John M. Auzin, Warwick, R. I., assignor to Davol Rubber Company, a corporation of Rhode Island

Application March 14, 1938, Serial No. 195,755

2 Claims. (Cl. 128—349)

My present invention relates to the manufacture of catheters, and has particular reference to the manufacture of pezzet head catheters.

It is the principal object of my invention to provide a catheter construction in which the head parts fold together when extended by means of the usual metal form, so as to facilitate insertion and removal of the catheter.

It is a further object of my invention to provide a catheter construction in which the head parts move together when pressed longitudinally so as to reduce the over all width of the catheter.

Another object of my invention is to provide a catheter having grooves integrally formed in the button head so as to guide the head parts in collapsing when subjected to the longitudinal pressure of an inserting form.

With the above and other objects and advantageous features in view, my invention consists of a novel arrangement of parts more fully disclosed in the detailed description following in conjunction with the accompanying drawing, and more specifically defined in the claims appended thereto.

In the drawing,

Fig. 1 is a perspective view, partly broken away, showing the novel catheter;

Fig. 2 is a longitudinal central section thereof, partly broken away, on the line 2—2 of Fig. 1.

Fig. 3 is a plan view of the novel former for forming the catheter;

Fig. 4 is an end view of the pezzet head;

Fig. 5 is an end view of the former;

Fig. 6 is a perspective view partly broken away, showing the catheter in extended position; and

Fig. 7 is a view similar to Fig. 6, sectioned on the line 7—7 of Fig. 6.

Referring to the drawing, the novel button head catheter 10 has a pezzet head 11 and a rear, slightly enlarged funnel end 12, the catheter being tubular as shown in Fig. 2, and the head having a tip 13, which is preferably thickened, and which may be re-enforced with a textile insert or the like, if desired, the catheter also having spaced lobes or sections 14 separated by grooves or indentations 15, which preferably terminate in openings 16 at their upper ends.

The catheters are preferably formed of latex, by dipping on a former 17 which consists of a rod portion 18 with a slightly enlarged funnel end 19, and a separate head portion 20 which has a central recess for detachable mounting on a pin 21 extending from the head end of the rod 18. The head 20 has lobes 22, see Fig.

5 separated by longitudinal grooves 23, and a tip portion 24. When the parts are dipped, the latex forms as a coating over the former, successive dippings preferably with intermediate dips in coagulant solution building up the catheter to the desired thickness. After this thickness is reached, the catheter is air dried, and the openings 16 are then cut on the catheter while it is still on the former 17, these openings being cut over the recess ends. The former rod 18 is then withdrawn, and the former head 20 may then be withdrawn through one of the openings 16, the latter being sufficiently extendible to freely permit the head removal. If desired one opening for withdrawal may be cut, the other openings being cut after withdrawal.

In practice, a small number of dips, depending on the size of the catheter, are made on the assembled former; then the coated head is severed from the rest of the former, and the head coating removed; then the head is replaced on the former and the dips are continued, whereby a thick catheter tube and a thin pezzet head is obtained. It is sometimes desirable to additionally dip the top only of the head, to increase the top thickness while keeping the head body thin, whereby the head body is very elastic and the head top is strengthened to withstand the elongating pressure.

The novel catheter is thus an integral pezzet head catheter, formed in one piece, without seams, and having the pezzet head provided with indentations or recesses 15, whereby the insertion of a rod 25, see Fig. 6, and forward pressure on this rod so as to extend the pezzet head, results in a folding of the pezzet head as is clearly shown in Fig. 6, with the recess portions folding inwardly to permit the entire pezzet head to assume a relatively narrow outside diameter with no parts or edges extending out, whereby ready insertion and removal of the catheter without pain to the patient, results.

The use of forms made in separable pieces as disclosed supra, permits the manufacture of rubber articles having intermediate enlarged portions of much greater diameter than the end portions, whereby the inventive concept may be applied to the manufacture of other articles made of rubber or other resilient material, to eliminate seams and other disadvantageous features obtained when using separable molds.

While I have described a specific constructional embodiment of my invention, a specific method of manufacturing the novel catheter, and a specific former for manufacturing the novel

catheter, it is obvious that the invention disclosed supra may be applied to the manufacture of other rubber articles, and that changes in the shape, size, and design of the parts may
5 be made to suit the requirements for different rubber articles, and particularly catheters, without departing from the spirit and the scope of the invention as defined in the appended claims.

I claim:

- 10 1. An integral one piece seamless catheter having a pezzet head, said head having longitudinal lobes with depressions therebetween, said depressions folding inwardly to permit the pezzet

head to assume a relatively narrow outside diameter when subjected to elongating pressure, and an opening therethrough adjacent one depression.

2. An integral one piece seamless catheter having a pezzet head, said head having longitudinal lobes with depressions therebetween, said depressions folding inwardly to permit the pezzet head to assume a relatively narrow outside diameter when subjected to elongating pressure, 10 and an opening therethrough forming a termination of one depression.

JOHN M. AUZIN.