

July 21, 1942.

T. R. PEYTON

2,290,571

RECTAL DILATOR

Filed April 3, 1940

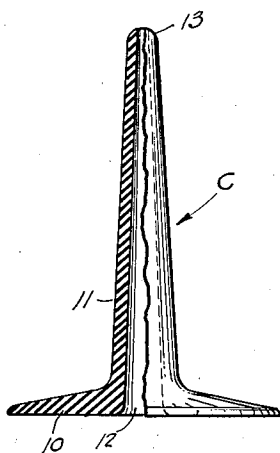


Fig. 1

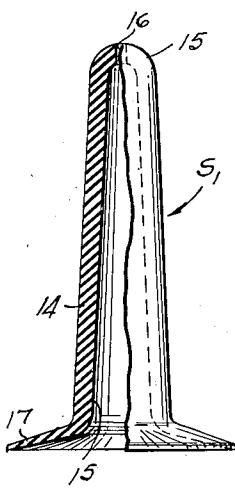


Fig. 2

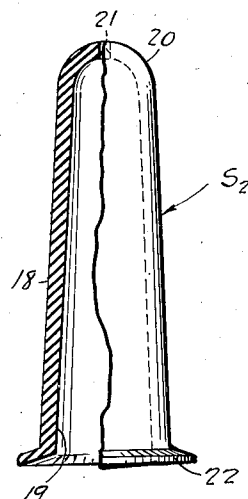


Fig. 3

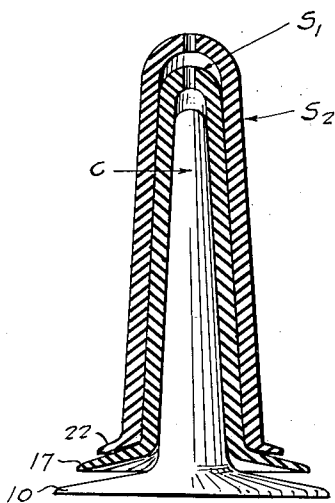


Fig. 4

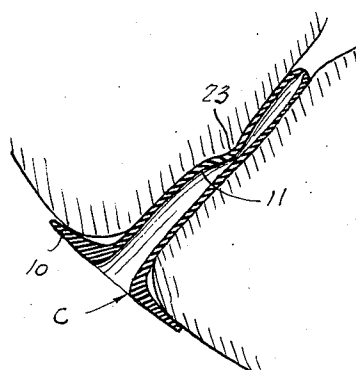


Fig. 5

INVENTOR.

THOMAS ROY PEYTON.

BY

Joshua H. Hottel

ATTORNEY.

UNITED STATES PATENT OFFICE

2,290,571

RECTAL DILATOR

Thomas Roy Peyton, Philadelphia, Pa.

Application April 3, 1940, Serial No. 327,567

4 Claims. (Cl. 128—343)

This invention has to do with medical instruments intended for the treatment of diseases and ailments of the rectum, and the invention is concerned primarily with the provision of a novel instrument designed for dilatation purposes.

At the present time it is well recognized by medical authorities that many disorders and ailments of the rectum such as fistulae and structures can be greatly benefited by dilation of the rectum, and certain devices have been provided for that purpose. However, the now known devices are of such a character that when used under practical conditions as to be unsatisfactory in many respects. The present invention aims at the elimination of these undesirable attributes of the now known dilators.

Ordinarily when dilatation of the rectum is required it is because of some disorder therein. Thus initial insertion of the dilator has, prior to the present invention, been a painful operation carried out ordinarily with great discomfort to the person under treatment, and in many cases has resulted in the reopening of old wounds of the rectum, and in some instances the causing of new ruptures.

These highly undesirable attributes of the initial insertion of the dilator have been due, in most cases, to two factors. First, the dilators have usually been made of some hard, nonyielding material such as metal, and, secondly, because of the large diametric dimension of the dilator which is made so because of the need of a large cross section to obtain the dilating effects.

With the foregoing conditions in mind this invention has in view, as its foremost objective, the provision of apparatus designed for the dilatation of the rectum, and which is characterized as including a core member that is made from a pliable, yielding material such as a rubber composition, and which core member has a relatively small cross section. This core member is intended for initial insertion in the rectum, and due to the small diametric dimension thereof, the material from which it is made, and certain structural characteristics thereof it may be inserted into the rectum with a degree of comfort heretofore unattained.

In designing this core member the same is provided with a bore extending therethroughout, and the core member itself is of conical formation with only a gradual incline from the smaller to the larger end. A base member or pedestal is attached to the larger end for limiting the extent of insertion and for aiding in maintaining the core member in effective position. The pres-

ence of the bore not only obviates the possibility of any discomfort due to the creation of gas pressures or partial vacuum, but also cooperates with the flexible material to provide a wall structure that is readily collapsed and deformed upon encountering an obstruction which might be present in the rectum.

Inasmuch as the length of this inner core member is obviously limited, and due to the gradual inclination of the walls thereof, it is susceptible for use only for the initial stages of dilatation. Accordingly the invention has in view, as a further object, the provision of apparatus of the character above noted including such a core member, together with a conical shell which is adapted to be nested thereon to carry out a later stage in the dilation of the rectum. This conical shell is designed of an appropriate inclination from end to end, and has a conical bore that is substantially complementary to the outer surface of the core. Thus when it is positioned thereover the core functions to act as a support for said shell.

The invention also has in view, as a further object, the provision of an outer shell that is also of conical formation, and which is made from material having substantially the same characteristics as the core and first mentioned shell, and which is designed to be nested over the said first mentioned shell to complete the third, and what in most cases will prove to be the last stages of dilatation.

In providing said shells which are intended to be nested over the core to carry out the later stages of dilatation, it is important to provide the nose of each shell with an opening that aligns with the bore of said core member. The larger end of each of said shells also carries a ring-like flange that corresponds to the pedestal base of said inner core member.

Various other more detailed objects and advantages of the invention will in part become apparent, and in part be hereinafter stated, as the description of the invention proceeds.

The invention, therefore, comprises rectal dilating apparatus which consists of a core member of hollow conical formation of comparatively small diametric dimension, and which is made from a pliable, yielding material such as a rubber composition. This core member has a bore extending therethroughout and at its larger end carries a pedestal base. A shell is designed for nesting over this core member, and a second shell is provided that is nested over said first mentioned shell. These shell elements are prefera-

bly made of the same material as the core member, and have structural characteristics rendering them substantially complementary thereto.

For a full and more complete understanding of the invention reference may be had to the following description and accompanying drawing, wherein

Figure 1 is a side view, partly in section and partly in elevation, of the core member of rectal dilating apparatus which is made in accordance with the precepts of this invention,

Figure 2 is a similar view of the shell which is designed for nesting over the core member, while

Figure 3 is another similar view of the outer shell which is designed for nesting over said first mentioned shell,

Figure 4 is a side view showing the core in elevation and the shells in section, and nesting over said core member, and

Figure 5 is a view showing the core member as inserted in the rectum.

Referring now to the drawing, wherein like reference characters denote corresponding parts, and first more particularly to Figure 1, the core member of the apparatus is shown as being made from a pliable material having desired properties of yieldability and resiliency, such as an appropriate rubber composition. This core member is referred to in its entirety by the reference character C. The core member C comprises a pedestal base 10 from which upstands a conical core 11. A conical bore 12 extends throughout the base 10 and core 11, and due to the presence thereof the wall of the core 11 is rendered susceptible of deformation in a manner to be later pointed out.

It is notable that the core 11 has a nose at 13 that is rounded, as illustrated, and which is of comparatively small diametric dimension. Due to the conical shape of the core this diametrical dimension gradually increases to the base 10.

Referring now more particularly to Figure 2, there is therein illustrated a shell member which is designed to be fitted over the core member C. This shell member is preferably made from the same material as that used in making the core member C, and is identified by the reference character S₁. The shell member S₁ comprises a conical wall 14 having a conical bore 15 that is complementary to the outer surface of the conical core 11. Thus the wall 14 is adapted to be snugly fitted over the core 11.

The smaller end of the shell member S₁ takes the form of a rounded nose 15 which is formed with an opening 16 communicating with the bore 15. When the shell member S₁ is nested over the core member C this opening 16 aligns with the bore 12 of the core member C, as brought out in Figure 4. At the larger end the conical wall 14 carries a ring-like flange 17 which corresponds to the base 10 of the core member C.

The outer shell member, generally identified by the reference character S₂, is shown in Figure 3 as preferably made from the same material employed in the manufacture of the core member C and the shell S₁. This outer shell S₂ comprises a conical wall 18 having a conical bore 19 that is complementary to the outer surface of the wall 14 of the shell member S₁. Thus the shell member S₂ may be nested over the shell member S₁ and the wall 18 will be provided with adequate support by the wall 14 that is in turn supported by the core 11.

At the smaller end the conical wall 18 takes

the form of a nose 20 formed with an opening 21 that aligns with the opening 16 and shell member S₁, and bore 12, when the assembled nested relation of the assembled parts is accomplished. At the larger end the conical wall 18 carries a ring-like formation 22 that corresponds to the flange 17 of the shell member S₁ and the pedestal base 10 of the core member C.

Referring now more particularly to Figure 5, there is therein represented, somewhat sketchily, the manner in which the core member C might be initially inserted in the rectum, even when an obstruction is present. Such an obstruction is represented at 23, and, it will be noted, has the effect of causing the core wall 11 to be partially collapsed and deformed. Thus the core 11 may be inserted as the initial stage in the treatment of a disordered rectum without an excessive amount of pain or undue discomfort to the person being treated. This result is due to the following factors: First, the nose 13 of the core 11 has a very small diametric dimension; Secondly, the incline of the conical wall 11 to the pedestal base 10 is very gradual; Thirdly, the nature of the material of which the core member C is made, namely the rubber composition, and, finally, the presence of the conical bore 12 which renders the core wall 11 more susceptible to being collapsed and deformed.

This insertion of the core member C is in marked contrast to the insertion of the larger dimensioned, nonyielding core having greater angle of inclination heretofore employed. The insertion is characterized by an easing of the core into its effective dilating position past any obstructions which might be present, as compared to the insertion of a dilator which would tear or rupture such obstructions.

When the core member C is inserted in the anus the extent of the insertion will be limited by the pedestal base 10, and the person being treated may readily keep the core member C in position a prescribed length of time so that the required dilating effects may be imparted to the sphincter muscles. The core member is then removed and the shell member S₁ nested thereover, after which the insertion is again repeated. Obviously greater dilation will now be obtained, and it will be noted that the core 11 of the core member C cooperates with the conical wall 14 of the shell member S₁ to provide a support for the same.

The assembled core member C and shell S₁ may be maintained in position a prescribed length of time, after which the two are removed and the outer shell S₂ added in nested position over the shell S₁. Insertion is again effected, and the third stage in the dilation obtained. For all normal cases this third stage of dilation will be the final one, as the shell member S₂ is of such dimension as to afford all necessary dilation.

It will be noted that upon insertion and withdrawal of either the core member C individually or with one or both of the shells S₁ or S₂ nested thereover there will be no creation of conditions of gas pressure or partial vacuum due to the presence of the bore 12 in the openings 16 and 21.

While preferred specific embodiments of the invention are hereinbefore set forth, it is to be clearly understood that the invention is not to be limited to the exact construction illustrated and described, because various modifications of these details may be provided in putting the invention into practice within the purview of the appended claims.

I claim:

1. Anorectal dilating apparatus comprising a columnar member having an outer conical wall gradually and uniformly increasing in circumference from an inserting end to a relatively large circumference adjacent its opposite end and being formed of a rubber-like material having form sustaining characteristics offering sufficient resistance alone to deformation for insertion purposes and also having sufficient resilience to exert a radial force to return said columnar member to its normal conical shape if it is pressed from such shape during insertion.

2. Anorectal dilating apparatus comprising a hollow columnar member having an outer conical wall gradually and uniformly increasing in circumference from an inserting end to a relatively large circumference adjacent its opposite end and being formed of a rubber-like material having form sustaining characteristics offering sufficient resistance alone to deformation for insertion purposes and also having sufficient resilience to exert a radial force to return said hollow columnar member to its normal conical shape if it is pressed from such shape during insertion.

3. Anorectal dilating apparatus comprising a columnar member having an outer conical wall gradually and uniformly increasing in circumference from an inserting end to a relatively large circumference adjacent its opposite end and

being formed of a rubber-like material having form sustaining characteristics offering sufficient resistance alone to deformation for insertion purposes and also having sufficient resilience to exert a radial force to return said columnar member to its normal conical shape if it is pressed from such shape during insertion, and a similarly shaped shell member formed of a similar material and having an insertion end of approximately the same circumference as the dilating circumference of said columnar member and being provided with a bore substantially complementary to the outer conical wall of said columnar member so as to provide mutual support between said columnar member and said shell when they are nested and used together.

4. Anorectal dilating apparatus comprising a columnar member of sufficiently short length to clear the peritoneum when inserted and having an outer conical wall gradually and uniformly increasing in circumference from an insertion end to a relatively large dilating circumference adjacent its opposite end, and being formed of a rubber-like material having form sustaining characteristics alone to offer sufficient resistance to deformation for insertion purposes and also having sufficient resilience to exert a radial force to return said columnar member to its normal conical shape after deformation during insertion.

THOMAS ROY PEYTON.