

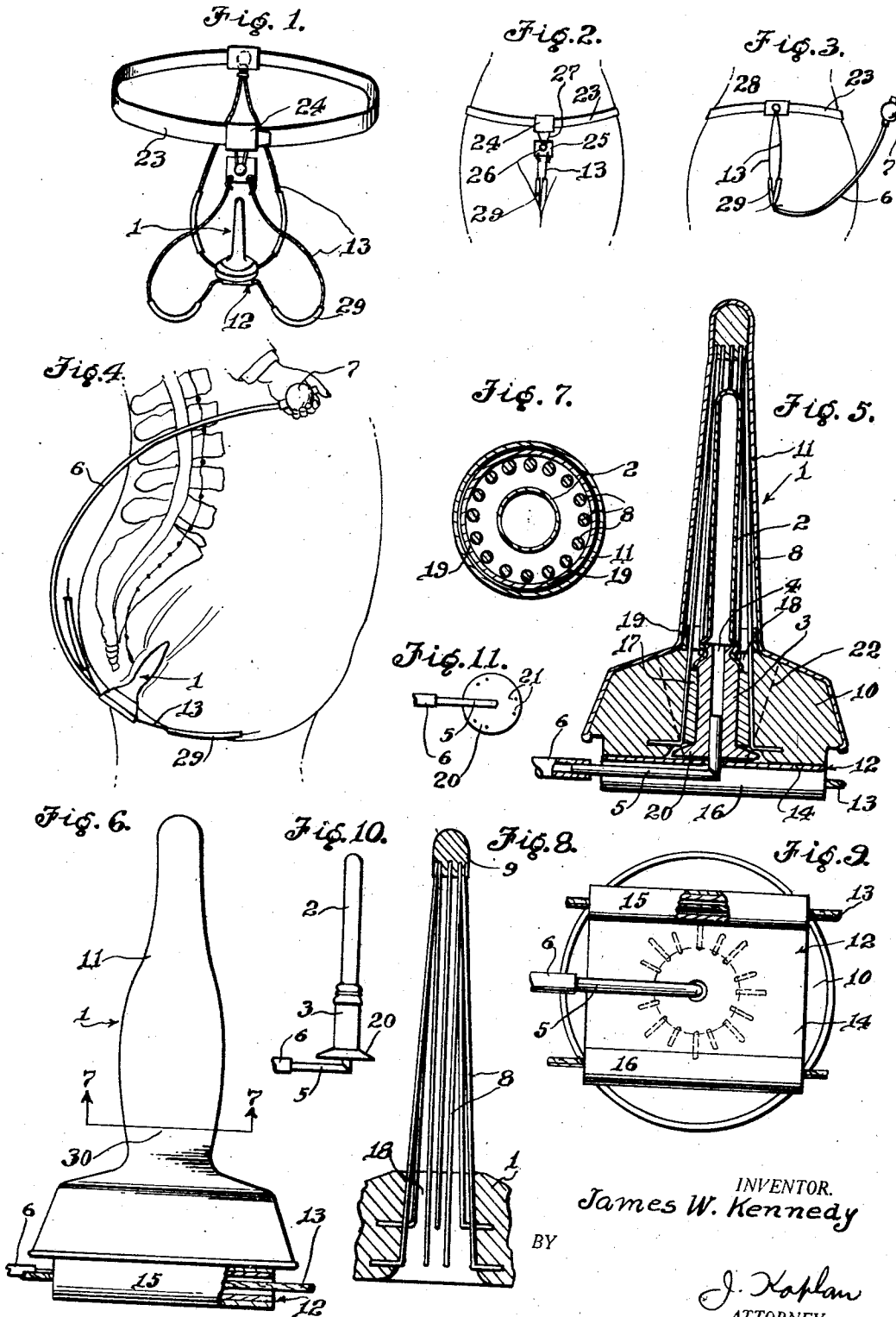
Sept. 27, 1932.

J. W. KENNEDY

1,879,305

DILATOR

Filed Sept. 23, 1931



UNITED STATES PATENT OFFICE

JAMES W. KENNEDY, OF CANTON, OHIO

DILATOR

Application filed September 23, 1931. Serial No. 564,636.

This invention relates to improvements in dilators and more particularly to an instrument for expanding the sphincter muscles in the rectum. This invention is an improvement of my co-pending applications, Serial Number 487,042, filed October 7, 1930 and Serial Number 537,172, filed May 13, 1931.

The principal object of the invention is to provide a device of this nature which will expand the sphincter muscles of the rectum without causing friction and without damage and pain.

Another object of the invention is the provision of a device for treating constipation, piles, poor circulation and other rectal diseases.

Another object of the invention is to provide a device which will expand the rectum throughout its length in an even and uniform manner.

Still another object of the invention is to provide an instrument of this character consisting of a tube made from pliable material and adapted to be inserted in the rectum and air pressure means for expanding the wall of said tube.

Still a further object of the invention is to provide an instrument of this kind comprising a pliable tube adapted to fit in the rectum, a series of wire guards longitudinally disposed in said tube and air pressure means for forcing said wire guards and the wall of the tube outwardly.

A further object of the invention is to provide means to support the dilator to the body of the patient.

Other objects of the invention will appear as the disclosure progresses. The drawing is intended to merely indicate a possible embodiment of the invention. It is obvious that the actual needs of manufacture may necessitate certain mechanical changes. It is therefore not intended to limit the invention to the embodiment illustrated, but rather to define such limits in the appended claims.

For a more general understanding of the invention, attention is called to the drawing. In the drawing like reference characters denote like parts throughout the specification.

Figure 1 is a perspective view of the dilator

shown attached to the belt which is worn at the waistline of the patient.

Figure 2 is a partial front view of a patient showing the belt attached to the body of the patient.

Figure 3 is a partial back view of a patient with belt attached.

Figure 4 is a diagrammatic view showing the dilator in operation.

Figure 5 is a sectional longitudinal view of the dilator.

Figure 6 is an outside view of the dilator shown in an expanded position.

Figure 7 is a section on line 7-7 of Figure 6.

Figure 8 is a sectional longitudinal view of the assembly of the wire guards.

Figure 9 is a bottom view of the dilator.

Figure 10 is a view on a reduced scale of the inner tube assembly detached from the dilator.

Figure 11 is a bottom view thereof.

Referring now to the drawing in detail numeral 1 designates the dilator comprising an inner rubber tube 2 attached to a sleeve 3. The sleeve is provided with a longitudinal bore 4 in which fits a pipe 5 leading to a rubber hose 6. At the free end of the hose is a bulb 7 for creating air pressure within the inner tube 2. Surrounding the said tube is a set of resilient wire guards 8. The upper part of the guards are embedded in a solid cap 9 while the bottom ends are bent outwardly and embedded in a soft rubber base 10. As noted in Figure 8 some of the wire guards are longer than others, the shorter ones being placed between the long ones.

Covering the assembly of wires and the top and side of the base is an outer rubber tube 11. At the bottom of the base is a guide 12 for the cables 13. The guide comprises a flat member 14 engaging the bottom of the base and two tubular members 15 and 16 at the sides through which loosely pass the said cables 13.

The inner tube is positioned in place by the solid rubber nipple 17 fitting in the hole 18 of the base 10. Between the outer tube 11 and the assembly of wire guards 8 is a pliable ring 19 made of non-stretchable material and

of a given diameter for a purpose to be later described. The sleeve 3 is provided with a bottom flange 20 having a set of holes therein in which pass the stitches 22 for the purpose of stitching the said sleeve to the base 10.

The dilator is attached to a belt 23 which is worn around the waist of the patient. Numeral 24 designates a slidable front sleeve fitting on the belt to which is attached a pad 25. The attaching means comprises a button 26 sewed on the pad and fitting into a hook 27 suspended from the sleeve 24. Tied to the corners of the pad is the front cables 13. At the rear of the belt is another sleeve 28 to which is attached the rear set of cables 13. Numeral 29 designates a set of short sections of rubber tubes covering the cables and adapted to protect the patient's skin from being chafed or otherwise injured by the bare cables.

The operation of the device is as follows: The dilator is first placed in the rectum and air pressure created in the inner tube 2 by repeatedly contracting the bulb 7. The bulb is of standard construction and includes a check valve at the place where the tube enters the bulb and an intake valve at the opposite end. When the bulb is contracted the air pressure formed therein will pass by the way of the hose 6 to the interior of the inner tube, the check valve preventing the reduction of air pressure. As the air pressure in the inner tube increases it will distend and cause the wire guards 8 and the outer tube 11 to distend also and thereby expand and enlarge the membrane of the rectum.

The ring 19 being of a certain measured diameter and non stretchable will limit the stretching of the dilator at 30 as shown in Figure 6. It is very important not to have the dilator stretch too much at this point otherwise the mouth of the rectum is liable to be ruptured. When the dilator is in a non distended position the ring 19 being normally larger in diameter than the outer tube will be gathered between the wire guards into a smaller diameter.

The purpose of providing means to attach the device to the body of the wearer is to enable the patient to be treated without any interference and while engaged in his regular business activities. The device can be carried around and worn without any discomfort to the patient. The dilators can be made of various sizes to suit the needs of the patient.

Having described my invention, I claim:

1. In a device of the class described, a base, an inner tube supported by said base, an outer tube, a set of wire guards between said inner and outer tube, and means to distend said tubes and said wire guards.

2. In a device of the class described, a base, an inner tube supported by said base, a set of wire guards surrounding said inner tube and embedded in said base at their lower

ends, and an outer tube covering said wire guards and said base.

3. In a device of the class described, a base, an inner tube supported by said base, a set of wire guards surrounding said inner tube and embedded at the lower ends in said base, the upper end of said wire guards embedded in a cap, and an outer tube covering said structure.

4. In a device of the class described, a base, an inner tube supported by said base, a set of wire guards surrounding said inner tube and embedded in said base, an outer tube covering said wire guards and said base, a pipe leading to the interior of said inner tube, and means at the opposite end of said pipe for causing an air pressure in said inner tube.

5. In a device of the class described, a base, an inner tube supported by said base, a set of wire guards surrounding said inner tube and embedded at the lower ends in said base, the upper end of said wire guards embedded in a cap, an outer tube covering said structure, a pipe leading to the interior of said inner tube, and means at the opposite end of said pipe for causing an air pressure in said inner tube.

6. In a device of the class described, a base, an inner tube supported by said base, an outer tube, a set of wire guards between said inner and outer tube, means to distend said tubes, and means to support said dilator from the body of the patient.

7. In a device of the class described, a base, an inner tube supported by said base, a set of wire guards surrounding said inner tube and embedded in said base, an outer tube covering said wire guards and said base, and means to support said dilator from the body of the patient.

8. In a device of the class described, a base, an inner tube supported by said base, a set of wire guards surrounding said inner tube and embedded at the lower ends in said base, the upper end of said wire guards embedded in a cap, an outer tube covering said structure, and means to support said dilator from the body of the patient.

9. In a device of the class described, a base, an inner tube supported by said base, a set of wire guards surrounding said inner tube and embedded in said base, an outer tube covering said wire guards and said base, a pipe leading to the interior of said inner tube, means at the opposite end of said pipe for causing an air pressure in said inner tube, and means to support said dilator from the body of the patient.

10. In a device of the class described, a base, an inner tube supported by said base, a set of wire guards surrounding said inner tube and embedded at the lower ends in said base, the upper end of said wire guards embedded in a cap, an outer tube covering said structure, a pipe leading to the interior of

said inner tube, means at the opposite end of said pipe for causing an air pressure in said inner tube, and means to support said dilator from the body of the patient.

5 11. In a device of the class described, a base having a longitudinal bore fitting in said opening, an inlet pipe leading to said bore, a rubber inner tube attached to the upper end of said tube, a set of wire guards
10 surrounding said inner tube, the lower ends of said wire guards embedded in said base while the upper ends embedded in a cap, and an outer rubber tube covering said structure.

15 12. In a device of the class described, a base having a longitudinal bore fitting in said opening, an inlet pipe leading to said bore, a rubber inner tube attached to the upper end of said tube, a set of wire guards surrounding said inner tube, the lower ends of
20 said wire guards embedded in said base while the upper ends embedded in a cap, an outer rubber tube covering said structure, means for attaching said base to a set of cables, and
25 means for supporting said cables from a belt worn around the waist of the patient.

13. In a device of the class described, a base having a longitudinal bore fitting in said opening, an inlet pipe leading to said bore, a
30 rubber inner tube attached to the upper end of said tube, a set of wire guards surrounding said inner tube, the lower ends of said wire guards embedded in said base while the upper ends embedded in a cap, an outer rubber
35 tube covering said structure, and a ring for limiting the distending diameter of said outer tube.

In testimony whereof I affix my signature.
JAMES W. KENNEDY.

40

45

50

55

60

65