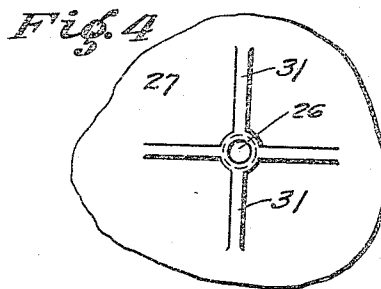
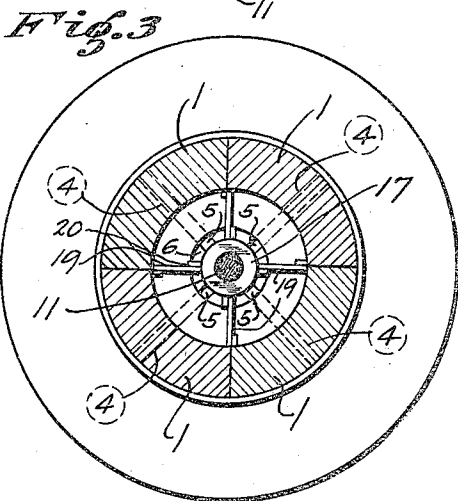
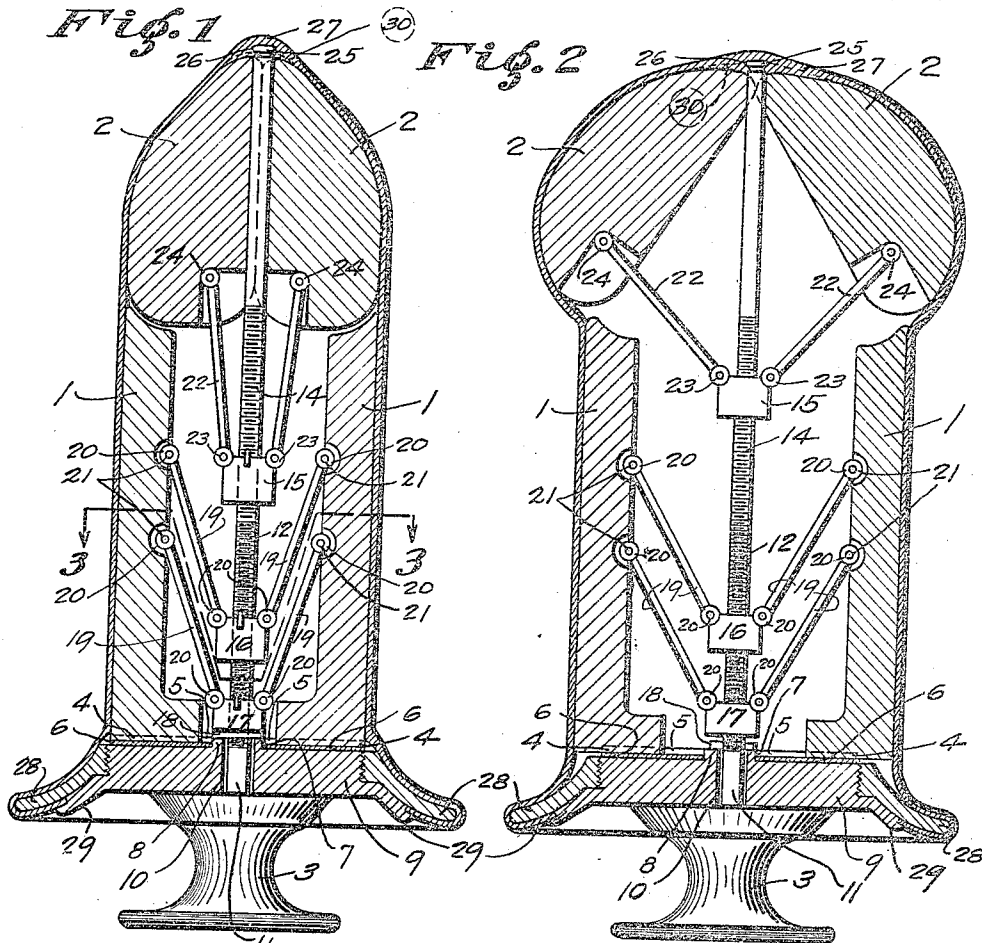


T. J. FLACK.
ADJUSTABLE RECTAL DILATOR.
APPLICATION FILED OCT. 20, 1917.

1,267,066.

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ADJUSTABLE RECTAL DILATOR.

1,267,066.

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To all whom it may concern:

Be it known that I, **THEODORE J. FLACK**, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Adjustable Rectal Dilators, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an improved adjustable rectal dilator, and it consists in the novel construction and combination of parts hereinafter particularly described and distinctly claimed.

The object of my invention is to provide an improved adjustable rectal dilator, which shall have means whereby it may be readily expanded or contracted to different sizes, and be thus adapted for use in the successful treatment of piles, constipation, and various rectal and intestinal diseases, without the necessity of using numerous solid (or fixed) rectal dilators of various sizes, as has heretofore been the practice; my invention accomplishing (in a single instrument) the same result which has heretofore required the successive application to the rectum of a series of separate fixed dilators of different sizes.

In the drawings,

Figure 1 is a vertical section of one of my expanding rectal dilators, purposely shown on an enlarged scale for the sake of clearness.

Fig. 2 is a similar view, with the parts expanded, or adjusted, to increase the diameter of the dilator.

Fig. 3 is a horizontal section of the dilator shown in Fig. 1, the section being taken on the line 3—3 of the last-named view, and

Fig. 4 is a fragmentary inverted plan view of the center-bearing and radial grooves in the interior of the flexible casing (or cover) at the apex of the head of the dilator.

In the present illustration of my invention I have provided a series of radially-adjustable parallel body-sections 1, that are substantially L-shaped in longitudinal section, as shown in Figs. 1 and 2, and a series of rocking radially-adjustable head-sections 2, all of which sections are arranged to be expanded simultaneously to increase the diameter of the dilator, and to be retracted simultaneously in reducing the size thereof, by

merely turning a thumb-screw (or suitable handle) 3, in the manner hereinafter more fully described.

The foot ends of the said body-sections 1 are made with a radial tongue 4 which slides within a corresponding radial groove 5 formed in the inner face of a base-plate 6, which has a central perforation 7 engaged by a hub or boss 8 on the interior of the cap 9, at the base of the instrument.

The said cap 9 has a central perforation 10 through which passes a longitudinal shaft 11, and the said thumb-screw or handle 3 is fixed upon the adjacent end of said shaft, so as to project upon the exterior of the dilator, in a position to be conveniently grasped by the fingers of the person who is using the instrument.

The said shaft 11 is preferably provided with two sets of screw-threads of different pitch intermediate of the ends of said shaft, the threads 12 being of comparatively fine size or pitch, and located on said shaft beginning at a point near to the said base-plate 6 and ending at a point approximating the center of the length of the shaft, while the other set of threads 14 are of a coarser pitch than are said threads 12, and are located on said shaft between said finer threads and the head-end of the shaft.

Mounted on the shaft 11 are (in the present case) three nuts 15, 16 and 17, the nut 15 arranged to travel on said shaft and engage the coarse threads 14, and the nuts 16 and 17 being adapted to engage the finer threads 12, for a purpose which will be readily understood by skilled mechanics.

Longitudinal movement of said shaft 11 is prevented inwardly by contact of said thumb-screw or handle 3 with the said cap 9, and in an outward direction by the contact of a suitable pin or the like 18 fixed on said shaft to bear against said hub or boss 8 of the said cap.

A series of parallel toggle-arms 19 have their inner ends pivoted to perforated ears or lugs 20 on said traveling nuts, 16 and 17, while the outer ends of said toggle-arms are pivoted at 21 to said expanding body-sections 1, so that when said shaft is revolved the said body-sections will be moved out or in a corresponding distance, their foot ends being guided in such movement by the tongues 4 sliding in said radial grooves 5 of the said base-plate 6.

Another series of toggle-arms 22 have their inner ends pivoted to the said nut 15 at 23, and their outer ends pivoted to the lower portions of rocking or swinging head-sections 2, at 24, so that when said shaft is revolved the said lower portions of said head-sections will be expanded or contracted a correspondingly greater distance than will the said parallel body-sections 1, whereby a "head" will be formed on the head-end of the dilator after the instrument has been inserted in the rectum, and such "head" will be removed or reduced to the same size as is the body of the instrument when said head-sections are in their normal (retracted) position, which is that shown in Fig. 1.

The absence of any enlargement or "head" before the instrument is inserted in the rectum, as shown in Fig. 1, will greatly facilitate the insertion of the instrument, and in many cases will avoid the pain and injury caused by the "fixed" head of common dilators.

The head end of the shaft 11 is provided with a rounded head or journal 25, which is sprung into a center-bearing 26 formed upon the interior of the head of the flexible casing 27, which is preferably made of rubber, to envelop and fit tightly over all of the head-sections and the body-sections, as shown, and have its foot end turned inwardly over the outer margin of an annular flange 28, and there tightly clamped by a flange 29 of the said cap 9, when said cap is screwed into the threaded bore of the said flange 28.

The said flange 28, and the said flexible casing 27 which covers it, act to prevent the dilator from being inserted too far within the rectum, as does the base flange of ordinary rectal dilators.

The head ends of the said head-sections 2 are provided with tongues 30 which engage corresponding radial grooves 31 formed in the inner wall of the said flexible casing 27, to guide the said sections in their rocking or swinging movement, and also to hold these

sections in their proper relative positions at the head end of the instrument.

The operation and advantages of my invention will be readily apparent without further explanation, it being understood that the instrument may be made of any desired size, of any common material, and that the proportions of the parts may be varied by skilled mechanics without departing from the scope of my claims.

The said flexible casing 27 incloses said body and head sections, and seals the same hermetically against entrance of deleterious matter.

I claim:

1. An adjustable rectal dilator, having expanding and contracting parallel body-sections, expanding and contracting head-sections, an operating handle for controlling said body and head sections simultaneously from the exterior of the instrument, and a flexible casing which is arranged to inclose said body and head sections and to seal the same hermetically against the entrance thereto of deleterious matter.

2. An adjustable rectal dilator, having expanding body-sections arranged to move radially, expanding head-sections arranged to move radially at their inner ends, an operating shaft extending axially of the instrument and having screw-threads, nuts mounted upon the screw-threaded portion of said shaft, toggle-arms pivotally connecting said sections to said nuts, the said shaft being held against longitudinal movement, an operating handle fixed on one end of said shaft, and a flexible casing which envelops the entire instrument except the said operating handle.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THEODORE J. FLACK.

Witnesses:

FRANCES HOOVER ROSENBAUM,
JOHN C. HIGDON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."