

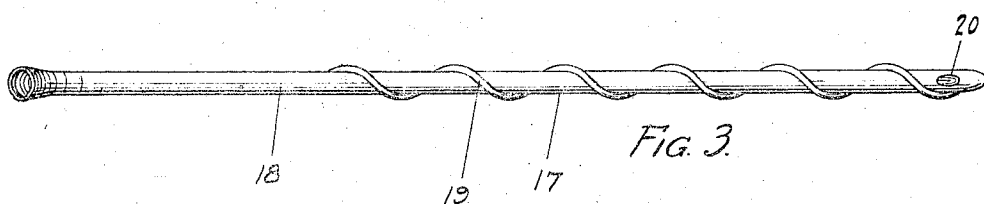
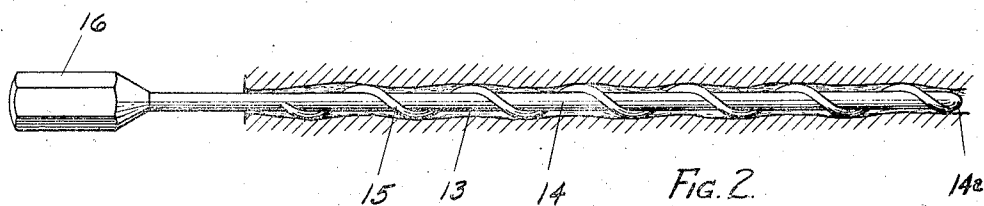
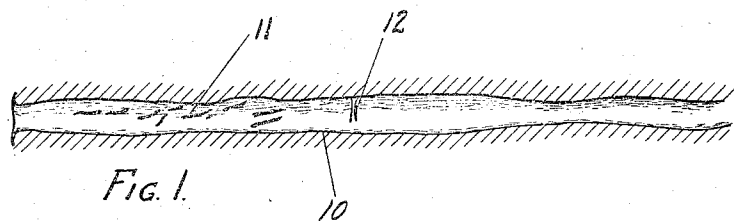
Oct. 11, 1927.

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1,644,919

INSTRUMENT FOR TREATING URETHRITIS

Filed March 8, 1926



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Patented Oct. 11, 1927.

1,644,919

UNITED STATES PATENT OFFICE.

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INSTRUMENT FOR TREATING URETHRITIS.

Application filed March 8, 1926. Serial No. 93,060.

This invention relates to instruments for treating urethritis and conditions resulting therefrom.

In chronic urethritis the pathologic factors that are most important in explaining the persistency of the disease are stricture, congested and granular patches, enlargement and inflammation of the lacuna magna, lacuna of urethra and the urethral mucuous follicles.

The chief source of the discharge is the mucuous follicles of the urethra involved in the chronic inflammation and granular patches along the floor of the urethra, and frequently situated immediately behind the strictured areas.

Stricture of the urethra is an abnormal diminution of its caliber, temporary or permanent. The type of stricture most frequently met with in the treatment of chronic urethritis has been caused by the congestion and inflammation resulting from a bacterial infection.

Some of the procedures employed by surgeons in treating the above conditions are the use of metal sounds, silk or rubber bougies and mechanical dilators. These instruments are cylindrical in shape and have a smooth surface and their action is to spread and dilate the tissues. The result being that the strictures by gradually increasing the diameter of the sounds, bougies or dilators from time to time are stretched and gradually enlarged to the normal caliber of the urethra, thus the strictured area is eventually corrected. However, this procedure is frequently very painful and at times the tissues are torn and lacerated and treatment necessarily has to cease until the torn areas have healed.

When the cylindrical type of sounds, bougies or dilators are used for the purpose of stretching or emptying the lacuna and urethral follicles, particularly the latter, the action is incomplete, as it is obvious that when the canal is stretched to capacity the mouths or openings to the follicles are closed before the complete emptying of the pockets have taken place.

In introducing instruments of the cylindrical type into the urethra there is danger of pushing the infection further down towards the bladder as there is no means of escape for the pus that is dislodged by the pressure.

Mechanical dilators act very much the same as the sounds or bougies only that they are faster in their action, more painful to the patient, and are liable to do more damage to the tissues.

Frequently the meatus (the opening of the urethra) is found to be too small to permit the introduction of sounds or bougies cylindrical in shape, of sufficient size to properly dilate the urethral canal. The caliber of the urethra in more than fifty per cent of cases is larger than the opening of the meatus, and it becomes necessary to enlarge this meatus, by performing a slight operation, to permit the introduction of sounds or bougies of sufficient diameter.

The present invention contemplates the application of a principle to urethral instruments which is unique and has not heretofore been used. It is proposed to construct sounds and bougies and catheters along the same general lines that are now in use, only that the surface, instead of being cylindrical, has a spiral raised area beginning from its tip and extending a part way or the entire length of the instrument. In other words, the body of the instrument will consist of a shaft, the spirals covering the body of the instrument. These spirals are convexed, smoothed and rounded to permit easy introduction without doing any damage to the tissues.

The spiral metal sound is more easily introduced into a strictured urethra than than either straight or curved metal sounds, silk or rubber bougies of the smooth cylindrical type. The action of the instrument with only a slight rotary motion produced by the operator causes it to worm its way into the canal towards the bladder. The body or shaft of the spiral sound can be of a small diameter and the spirals can be of different elevations on different instruments thus permitting a sound of a larger effective diameter to be introduced through a stricture with less tension, pain or damage, and without tearing the tissues, than with the old type of instruments.

When the spiral sound is introduced into the urethral canal the operator may grasp the instrument, holding it firmly, preventing the instrument rotating when it is withdrawn so that by the spirals passing over the stricture area, every portion of the stricture will be massaged by the progressive

rotary action thereon of the passing spirals and thus will be stretched and dilated without doing damage to the structures of the urethral wall. A more rapid correction of the strictured condition is obtained by this action.

When the spiral sound is withdrawn over the surface of granular patches, a stimulation is produced which causes regeneration, and a healthy normal condition of the tissues is thereby obtained.

When it is desired to empty the urethral follicles, the spiral action on introduction, as well as withdrawal, has a tendency to completely milk out and empty the follicles because the pressure begins at the bottom of follicles leaving the mouth unobstructed, thus permitting the follicular contents to come to the surface of the follicles.

A spiral bougie of flexible material will have the same action as the straight or rigid type, and will also pass through the curved portion of the urethra, enabling the operator to obtain the same results in the prostatic urethra, as well as the pendulous portion of it.

A catheter constructed along the lines of those formerly in use, only with the spiral elevations, secures the same general benefit of the spiral bougies for it will find its way through the urethral canal much easier than the old type. It is possible to introduce a spiral catheter through the urethra into the bladder where the cylindrical type will fail to enter, particularly in those patients with an enlargement of the prostate gland.

The danger of pushing infected substances, fluid or pus into the urethra by the spiral sounds, is much less than with the other type of urethral instruments. The spiral action withdraws all material found in the urethra out towards the meatus or outside, where the other types of instruments will push these materials or infections inward toward the bladder.

Since the shaft or barrel of the spiral sound, bougie or catheter is smaller than the outside diameter of the spiral surface, it is possible to introduce much larger spiral instruments through a contracted meatus than with the old cylindrical type. For example, a meatus which will permit the introduction of an instrument no larger than a 22-sound of cylindrical type will permit the introduction of a spiral instrument equivalent to a number 30.

Reference is now made to the accompanying drawings, illustrating the instruments embodying the invention for carrying out the method. It is to be understood that the invention is not limited to the particular forms thereof as shown and described below.

Of the accompanying drawings,

Figure 1 illustrates a diseased urethral canal;

Figure 2 illustrates a metal sound, embodying and adapted to carry out the invention, in said canal; and

Figure 3 illustrates a flexible catheter embodying the invention.

Referring to the drawings, 10 represents a diseased urethral canal having, for example, congested and granular patches as indicated at 11 and a stricture as indicated at 12.

A metallic sound embodying the invention is shown generally at 13 (Figure 2) and comprises a cylindrical shank 14 having a raised spiral rib 15 thereon extending from a comparatively blunt end 14^a to a point spaced from a handle 16 sufficiently to permit working of the spiraled portion of the instrument held against rotation back and forth entirely within the canal so as not to cause needless pain. The surface of rib 15 is convex or rounded and smooth so as to massage the wall of the canal without lacerating the tissues. The handle 16 is preferably of suitable shape in section (hexagon shape, for example) so as to facilitate rotation of the instrument by the hand and also to facilitate holding it against rotation. The instrument is of such length that it may be worked well into the urethral canal toward the bladder.

In Figure 3 a catheter 17 is shown. This comprises a flexible hollow tube 18 of material such as rubber having a spiral rib 19 thereon similar to rib 15. The entering end of the catheter has the usual aperture 20 therein. The body portion of the instrument, however, is smooth and imperforate so as not to injure the tissues.

It is, of course, to be understood that the sounds, bougies or catheters may be of rigid or flexible material and either solid or hollow. In every case, however, they are formed with spiral ribs, such as 15 or 19, to secure the benefits of the invention.

In practice, the canal 10 to be treated is preferably first filled with a suitable lubricating, non-greasy, mildly antiseptic jelly, such as boric acid jelly. The instrument, preferably similarly lubricated, is then introduced into the canal by forcing it inwardly while rotating. Due to the formation of the instrument this is easily accomplished with a minimum of pain since the perimeter of the instrument at any point is less than the circumference of an equivalent cylindrical instrument.

The spiraled portion of the instrument is entirely introduced (Figure 2) in the above manner. The wall of the canal is then massaged by the instrument by holding it against rotation and moving it back and forth. The massaging and dilating action of the spiral rib on the wall of the canal at any point, for example, at the stricture 12, is progressively and rotatively about the

circumference of the canal and thus effectively massages the stricture back to the normal caliber of the canal. This massaging action on the follicles thoroughly milks
5 them of the pus. It will be seen that under this action of the spiral rib when entering, the tendency to carry the pus back into the bladder is obviated, and upon withdrawal of
10 the instrument, the pus that has been massaged from the wall of the canal will be effectively withdrawn.

Modifications of the invention may be resorted to without departing from the spirit thereof or the scope of the appended
15 claims.

What is claimed is:

1. An instrument comprising a hollow flexible shank of uniform diameter and imperforate throughout the body portion thereof formed with a closed entering end and
20 having an aperture therein adjacent said end, said shank having a fixed, spiral, rounded rib of uniform height on the body portion thereof.

2. An instrument for treating urethritis 25 comprising a flexible shank of uniform diameter and smooth throughout the body portion thereof and formed throughout said body portion with a fixed continuous spiral rib of uniform height, said rib being
30 smooth and rounded.

3. An instrument for treating urethritis, said instrument comprising a shank of uniform diameter slightly tapered or rounded at its entering end and smooth throughout its
35 body portion and having a handle on one end and formed with a fixed continuous rounded spiral rib of uniform height extending from a point spaced from said handle to the entering end of said shank. 40

4. A sound, bougie or the like, comprising a cylindrical shank of uniform diameter throughout the length of its dilating portion and having a smooth surface on said
45 dilating portion on which is raised a fixed continuous spiral rib.

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