

UNITED STATES PATENT OFFICE.

CHARLES GORDON GIBSON, OF SIOUX CITY, IOWA.

DILATOR.

SPECIFICATION forming part of Letters Patent No. 702,789, dated June 17, 1902.

Application filed March 20, 1902. Serial No. 99,106. (No model.)

To all whom it may concern:

Be it known that I, CHARLES GORDON GIBSON, a citizen of the United States, and a resident of Sioux City, in the county of Woodbury and State of Iowa, have invented a new and Improved Dilator, of which the following is a full, clear, and exact description.

My invention relates to a surgical instrument adapted for use as a urethral, uterine, or anal dilator, and has for its object to provide a simple construction which may be readily applied, and which will exert pressure without any injurious effect, and which will not be liable to breakage.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal section of my improved dilator in its contracted form. Fig. 2 is a similar view, showing the instrument in an expanded condition; and Fig. 3 is a transverse section on the line 3 3 of Fig. 1.

The instrument comprises a tube A, the walls of which are of uniform thickness from the rear end a to the point a' intermediate of its ends; but while the outer surface of the tube is constant in diameter throughout its length the walls of the tube are reduced in thickness or are inclined in an outward direction from the point a' to the point a^2 near the forward end of the tube, and said walls are of uniform thickness, yet thinner than the other portion of the tube from the point a^2 to the forward end a^3 of the tube, which end is open. The bore of the tube thus increases in width toward its forward end.

At the outer end of the tube A a handle B is formed or secured, preferably made with eyes or finger-rings B' , and the tube A is contained in a thin soft-rubber sheath C, provided with an air-vent c near its forward end, and a solid, curved, or rounded tip c' at its forward end, against which the forward end of the tube A has bearing.

A rod D extends loosely the length of the tube A and out beyond its inner end, being provided with a thread d for a greater portion

of its length, which thread is preferably carried to the outer end of the rod to permit the ready attachment of a handle D' . The threaded portion of the rod D is passed through a nut E, adapted to be manually operated and which bears against the rear end of the tube A.

The tube A has longitudinal slits e extending almost from end to end, forming segmental bars e' , (best shown in Fig. 3,) which are capable of being sprung or of bending outward, as is illustrated in Fig. 2, and such expansion of the bars e' is brought about through an approximately pear-shaped piston or plunger D^2 at the forward end of the rod D being brought into engagement with the inner surface of the split section of the tube A.

In operation the instrument, being in the contracted form shown in Fig. 1, is introduced into the body a proper distance, and then by turning the nut E the piston or plunger D^2 is caused to travel rearward or outward, expanding the tube A, as is shown in Fig. 2, and correspondingly dilating the body. It will be observed that in the expanding operation the tube A and sheath C do not move lengthwise or turn, thus avoiding injury and irritation of the membranes, and as the sheath C forms a continuous cover for the split tube A the edges of the latter do not come in contact with the body and breakage of the bars e' , of which the main portion of the tube is formed, is extremely unlikely. Should it, however, take place, the sheath will prevent the broken pieces from coming in contact with and injuring the body.

The instrument is adapted for use as a urethral, uterine, or anal dilator.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A dilator for surgical purposes, comprising a tube split so as to consist of a plurality of segments or bars, the bore of the said tube being widened at one end, a plunger movable lengthwise in the tube and arranged to engage the said widened end of the body of the tube to expand said tube, and an expansible sheath in which the said tube is inclosed.

2. A dilator for surgical purposes, comprising a tube split so as to consist of a plurality

- of segments or bars, the bore of the said tube being gradually widened in direction of one end, a plunger movable lengthwise in the tube and arranged to engage said widened end
5 and the body of the tube to expand said tube, a nut held to revolve at the outer end of the tube and engaging a threaded portion of the plunger-rod, and an expansible sheath in which the said tube is inclosed.
- 10 3. A dilator for surgical purposes, comprising a split tube, a plunger movable lengthwise in the tube and arranged to expand the same, means for actuating the plunger, and an expansible sheath in which the said tube
15 is inclosed.
4. A dilator for surgical purposes, comprising a split tube having its bore tapered in direction of its forward end, the diameter of the bore of the said tube at its forward end being
20 greater than at any other point throughout its length, a plunger movable lengthwise in

the tube and arranged to expand the same, means for actuating the plunger, and an expansible sheath in which the said tube is inclosed.

- 25 5. A dilator for surgical purposes, comprising a split tube, a handle at the outer end of said tube, a nut mounted to turn on the tube adjacent to the handle, a plunger mounted to slide within the tube and adapted to expand
30 the same, said plunger having a screw-threaded rod extending through the nut, and an expansible sheath in which said tube is inclosed.

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

CHARLES GORDON GIBSON.

Witnesses:

JAMES DOUGHTY,
THEO. L. THOMPSON.