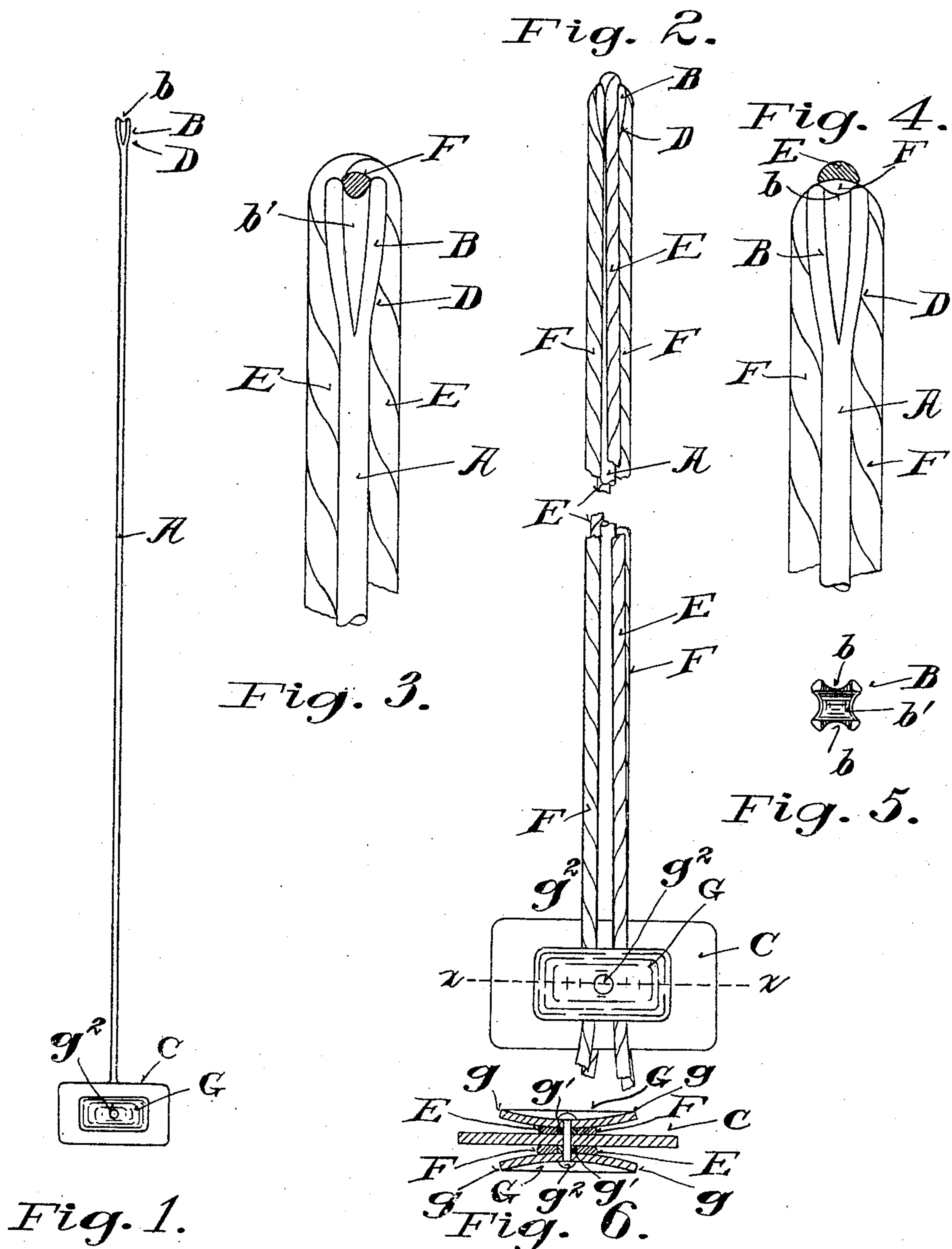


No. 814,038.

PATENTED MAR. 6, 1906.

H. H. GROTH.  
MEDICAL APPLICATOR.  
APPLICATION FILED DEC. 31, 1904.



Witnesses.  
Henry M. Bauer Hans Hennerich Groth,  
Fred Abel. by A. F. Verbeke, His Attorney.



# UNITED STATES PATENT OFFICE.

HANS HENNERICH GROTH, OF CINCINNATI, OHIO.

## MEDICAL APPLICATOR.

No. 814,038.

Specification of Letters Patent.

Patented March 6, 1906.

Application filed December 31, 1904. Serial No. 239,228.

*To all whom it may concern:*

Be it known that I, HANS HENNERICH GROTH, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Medical Applicators, of which the following is a specification.

It is the object of my invention to provide a new and improved medical applicator by which disinfectants or medicine may be introduced into and to desirable points of sinuses, canals, or openings in the body, whether in the flesh or bone of human beings or animals for the purpose of treating the affected parts directly at their seat of trouble, and my invention will be readily understood from the following description and claims, and from the drawings, in which—

Figure 1 is a front elevation of my improved device. Fig. 2 is an enlarged front elevation of the same, partly broken away, with the strands in position. Fig. 3 is a side elevation of the head end of my improved device, partly broken away. Fig. 4 is a front elevation of the same, partly broken away. Fig. 5 is a top view of the head end of my improved device, and Fig. 6 is a cross-section of the handle on the line *xx* of Fig. 2.

A represents a stem upon which there is a head B and which has a handle C, shown as of plate form. The head preferably has a tapering neck D at its connection with the stem. On the head there is a groove *b* across its top from front to rear and preferably extending up and down along both the front and rear of the head and taking along the tapering neck and being arranged to receive a strand E. This strand or cord is preferably composed of absorbent fiber and is preferably rendered antiseptic or medicated, as by being saturated or coated with a suitable antiseptic or medicine, dependent on the treatment it is desired to give an affected part, or the strand may be employed for withdrawing diseased matter from the body for diagnosing the disease. If desired, the head may also be provided with a cross-groove *b'*, taking across the top of the head and preferably slightly below the groove *b* and extending up and down along its sides as well as along the tapering neck for the purpose of receiving a second strand F of fiber or cord. The head may be provided with one or more of said grooves for receiving one or more of said strands. As shown in the cross-section of the head with the cords applied, it is de-

sirable to have the grooves sufficiently deep to receive the strands and retain them during application and also sufficiently shallow so that the strands may extend laterally beyond the head. The cords are retained in position by being laid longitudinally of the stem and held with sufficient tension to avoid their slipping from the grooves in the head. For holding the strands I provide the handle with one or more clips G, which preferably have their ends bent outwardly, as shown at *g*, for forming dished plates and forming a wide mouth for readily receiving the strands and curving or inclining toward the handle for clampingly holding the strands. The clips may be separated from the handle by washers *g'*, and the whole secured together by a rivet *g''*.

In using my improved applicator the strand or strands are inserted into the groove or grooves at the head of the applicator and temporarily secured to the handle. The head of the applicator, together with the strand or strands, is then introduced into the groove, channel, sinus, canal, or other place it is desired to treat, introducing the strand or strands to or past the point affected, the stem and cords being sufficiently long to permit this and still permit the outer ends of the strand or strands to extend from the outer end of the opening, when the outer ends of the strand or strands are released from the handle and the applicator is withdrawn by a backward movement of the head, leaving the strand or strands in place to perform their healing or other function. The stem of my improved applicator is of flexible, but resilient material, so that the same may follow the course of the canal or sinus or other part along which it is desired to pass the same. In my improved applicator a very thin stem and a small head may be employed, and the strands may also be thin, so that undue dilation or injury to the affected parts may be avoided. My improved applicator insures that the medicine shall be applied in any desirable part along the distance or at the end of a sinus or channel without danger of having the medicine wiped off or removed from the applicator by a previously-passed part of the channel or sinus. It also insures the application of the medicine to the affected part with less pain to the patient and permits affections to be locally treated, which had heretofore to be treated through the introduction of medicine into the stomach of the patient



with its detrimental effects upon parts of the system not previously affected.

My improved device is intended, primarily, for the application of disinfectants or medicine; but it may also be employed in diagnosing diseases. Thus the strand may be placed upon the applicator and introduced into the affected part—such as fistulas, abscesses, or the like—and the instrument, together with the strand, then removed, bringing to the surface some of the contents of the affected part, which may then be subjected to analysis for determining the affection.

The stem, head, and handle of my improved applicator are preferably made of metal, so that the same may be subjected to boiling water or other treatment without injury for sterilizing the same.

With my improved device deep wounds, channels, and sinuses, as well as wounds resulting from penetrating nails, bullet-holes, or the like may be treated, so as to begin or set up their healing function at the innermost part of the wound, and thereby heal the wound or other affection from within outwardly for preventing healing of the surface prior to the healing of the inner part of the wound, and thereby prevent tetanus or other evil results. In my improved device also the medicine applied remains in the position in which it has been placed until removed, the outer ends of the cords always being so arranged as to protrude from the affected part, and in dressing the affection the strands are removed by pulling upon the protruding outer ends. My improved device also permits its employment by the patient himself, however timid, as the instrument holds the strand in place and the flexible stem permits the head and the lubricated or medicated strand to literally find its proper place, the strand being temporarily left in the affected part for the absorption of the medicine therein by the affected part by the mere withdrawing of the stem. My improved device further avoids the necessity for enlarging grooves, channels, or sinuses in order to permit the introduction of medicine or dressing and the use of groove-cutters for the purpose and also avoids the employment of torturing dilating instruments for reaching the affected part or seat of trouble. With my improved device, on the contrary, the healing operation can be begun forthwith and scars or welts avoided. As illustrating a useful application of my improved device it may be stated that besides other diseases it has been used with remarkable success in the treatment of strictures, ulcerations of the urethra, and other venereal diseases, as the strands, properly coated, lubricated, or saturated with the proper medicine, can be introduced into the affected canal for any desired distance by means of the flexible stem with its grooved head and the stem and head with-

drawn for leaving the cord in place for performing its healing function without undue dilation of or torturing operation upon the affected parts. The medicated strand may be allowed to remain in place for performing its proper dilating or healing function until the patient desires to void urine, when the strand may be removed by pulling upon the protruding ends and after so voiding may be renewed by the patient himself for the purpose of continuing the treatment. My improved device is extremely simple and effective and is easily applied.

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

1. The combination of a medical applicator having a stem provided with a head at its extreme outer end, said head having a groove at its extreme outer end for receiving a medicated strand, the outer end of said head and the walls of said groove being rounded for permitting direct contact with the walls of an afflicted passage without injury to said walls, said medicated strand stationarily positioned upon said head and stem and extending in advance of and lengthwise of said headed stem and directly contacting the walls of the passage to be treated throughout the length of the insertion thereof during said insertion, said head connecting with said stem by means of a sloping neck for permitting withdrawal of said headed stem from said strand by the backward movement of said headed stem, substantially as described.

2. An improved medical applicator having a flexible stem provided with a head at the extreme outer end thereof, said head having a groove at its extreme outer end for receiving a strand and having a sloping neck connecting it with said stem for permitting withdrawal of said head from said strand by the backward movement of said head, said head having walls formed thereon by said grooves, the outer ends and edges of said walls being rounded, the outer sides of said collective strands, head and stem directly contacting the wall of the passage being treated, said strands extending in advance of said headed stem, and means at the other end of said stem for stretching said strand exposedly in fixed position against longitudinal movement along said stem during application of said strand to the affected part, substantially as described.

3. An improved medical applicator having a flexible stem provided with a head at the extreme outer end thereof, said head having a plurality of grooves at its extreme outer end for receiving a plurality of strands and having sloping neck connecting it with said stem for permitting withdrawal of said head from said strands by the backward movement of said head, the outer end of said head being rounded, said strands being looped in the said grooves and extending in advance of and lon-



5 longitudinally of said headed stem and being exposed at their outer sides throughout their length, a plate at the other end of said stem, and clips on said plate for temporarily holding said strands in fixed position against longitudinal movement along said stem during application of said strand to the affected part, said collective stem, head and strands directly contacting the wall of the passage being treated, all substantially as and for the purpose specified.

10 4. In combination, in a medical applicator, of a stem A provided with an enlarged head B at one of its extreme outer ends, said head 15 having crossing grooves *b b'* across its extreme outer end and along its sides, the said head and the walls of said grooves being rounded at all their outer portions, a taper-

ing neck D being located between said head and stem for permitting withdrawal of said head and stem from strands in said grooves, a handle C of plate form at the other end of said stem, a dished clip G at each side of said handle, a washer *g'* between each of said clips and said handle, and a rivet *g''* taking through said clips, washers and handle for securing the same together and forming clamping means for said strands, substantially as described.

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

HANS HENNERICH GROTH.

Witnesses:

FREDERICK ANZER,  
AUGUST F. HERBSLEB.