P. A. SHEAFF.

SPECULUM.

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1,222,478.

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Fig. 1.

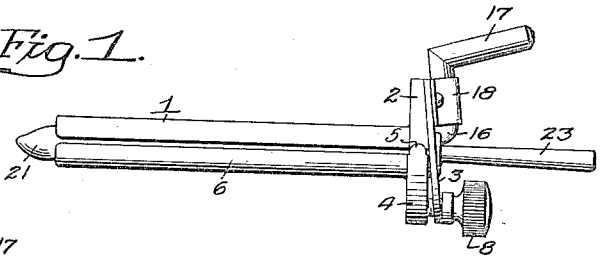


Fig. 3.

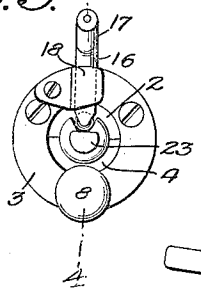


Fig. 2.

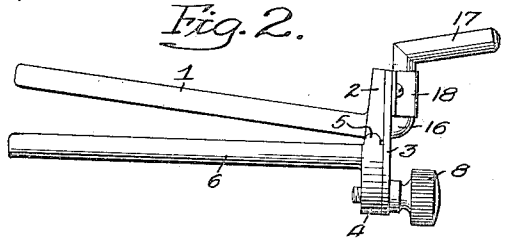


Fig. 4.

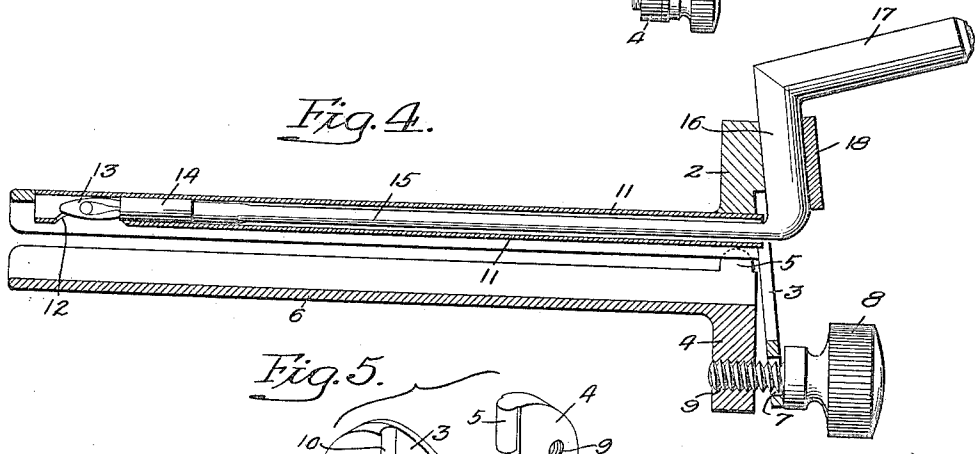
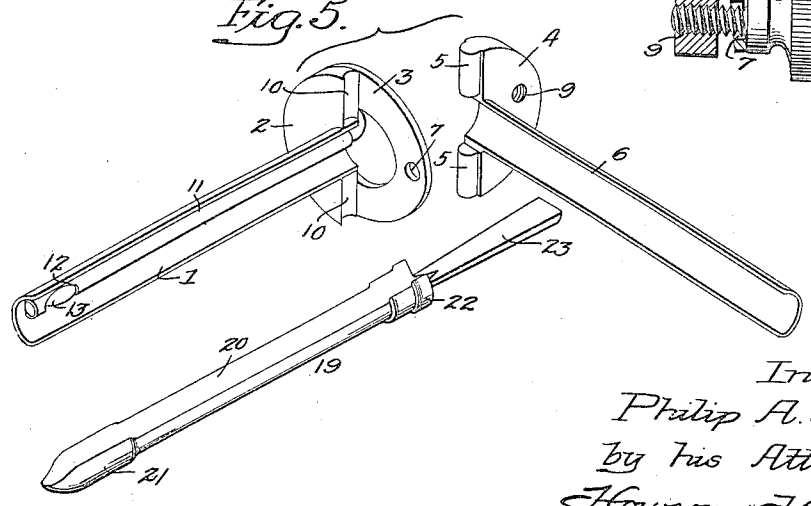


Fig. 5.



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SPECULUM.

1,222,478. Specification of Letters Patent. Patented Apr. 10, 1917.

Application filed May 10, 1916. Serial No. 96,585.

To all whom it may concern:

Be it known that I, PHILIP A. SHEAFF, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented a Speculum, of which the following is a specification.

One object of my invention is to provide a vaginal speculum particularly adapted for use in the diagnosis and treatment of certain diseases in infants and children;—the various parts of the instrument being of such a nature as to be few in number and simple in construction.

It is further desired to provide a speculum for the above noted use by which it shall be possible to secure a maximum dilatation of the inner portions of the vagina with a minimum dilatation of the hymen;—the parts being especially designed to avoid excessive stretching or rupture of the hymen.

Another object of the invention is to provide a speculum with a lighting attachment in such relation to its dilating members as will permit of an unobstructed view of relatively extended surfaces of membrane, etc., within the vagina adjacent the ends and sides of said members; the latter being designed to allow of an examination of said membrane at the end of the speculum even when it is not dilated.

Another object of my invention is to provide a speculum with a novel form of dilating means whereby it is possible to obtain the above noted desirable results.

These objects and other advantageous ends I secure as hereinafter set forth, reference being had to the accompanying drawings, in which,

Figures 1 and 2 are side elevations illustrating a speculum constructed in accordance with my invention, in its collapsed and dilated conditions respectively;

Fig. 3 is a rear elevation of the instrument shown in Figs. 1 and 2;

Fig. 4 is a vertical section on the line 4—4, Fig. 3; and

Fig. 5 is a detached perspective view of the main parts of the speculum.

In the above drawings 1 represents an elongated, practically semi-cylindrical dilating member, to one end of which is fixed a semi-annular plate 2 having concentrically fixed to or integral with it a ring 3 of the same diameter. The straight edge of the plate 2 is concaved for the reception of the correspondingly formed projecting portions 5 of the straight edge of a second semi-annular plate 4, which has fixed to it a second dilating member 6 of the same length and general proportions as the member 1. It will be noted that the ring 3 is so mounted relatively to the plate 2 as to extend at an acute angle to its plane and has a perforation 7 for the passage of a thumb screw 8 which is threaded into an opening 9 in the plate 4.

The various parts are so proportioned that when the hinge or pivotal projections 5 of the plate 4 lie within their recesses 10 in the edge of the plate 2, and the thumb screw 8 is passed through the opening 7 into the opening 9, the two structures 2—3, and 4—6 are movably connected, and when their outer ends are practically in contact, the outer surface of the plate 4 is spaced away from the adjacent face of the ring 3.

Fixed in any suitable manner within and lying substantially parallel with the inner wall of the member 1 is an open tube 11 which at one end is substantially flush with the outer surface of the plate 2 and terminates adjacent the opposite end of the member 1, there being provided an elongated window or opening 12 in said latter end of this tube. An incandescent lamp 13 is carried in a socket 14 mounted on one end of a second tube 15 which may be removably entered in the tube 11 so that said lamp lies immediately adjacent the window 12, the outer end 16 of said tube 15 being preferably enlarged and bent substantially at a right angle so as to fit into a holding clip 18 on the plate 2. The extremity 17 of the part 16 of the lamp tube is again bent at an angle, so that when mounted in the speculum it projects at an acute angle to the general line of the members 1 and 6, it being understood that an electrical conductor leads from a suitable terminal in the socket 14 through the tube 15—16 into the terminal portion 17 thereof, where it is connected to a central end terminal, it being noted that the tube itself constitutes the second conductor by which current flows to the lamp from said portion 17.

An obturator 19 is provided in the form of an elongated rod having a longitudinally extending groove or recess 20 for a major portion of its length and including an enlargement 21 at its bluntly pointed outer end;—its opposite end having a flange 22 designed to limit its entrance into the tubu-

lar structure formed by the two members 1 and 6. Beyond said flange the obturator is provided with a handle 23 which is cut away at one side to permit of the introduction or withdrawal of the lamp and its tube 15 while said obturator is in place. The recess 20 is obviously provided to permit of the introduction of the obturator between the members 1 and 6 without interference from the tube 11, and the length of said obturator is such that its pointed end projects beyond the inner ends of the two dilating members.

Under conditions of use the speculum in its collapsed condition shown in Fig. 1, with the obturator and lamp in place, is introduced through the hymen into the vagina until the inner faces of the plates 2 and 4 lie against the external genitals of the patient. The obturator is then withdrawn and the lamp is lighted, being connected to a source of current by suitable conductors engaging the part 17 and its central end terminal respectively, or it may be lighted before placing in position in the speculum.

If now the thumb screw 8 be turned in the proper direction, the dilating members 1 and 6 are caused to swing on the hinge or pivot projections 5 as a fulcrum so that their distant or inner ends are more or less widely separated, it being particularly noted that because of the construction illustrated, this separation of the members is accomplished with but relatively slight dilatation of the hymen, since this latter is engaged by the portions of the members 1 and 6 immediately adjacent the plates 2 and 4 which have but a slight relative movement. The membranes constituting the walls of the vagina adjacent the widely separated sides of the members 1 and 6 as well as the external mouth of the uterus at the ends of said members, are thus brightly illuminated and may be examined with the utmost ease through the opening in the ring 3.

Any desired treatment may then be administered by suitable instruments introduced through the opening in the ring 3 and applied to any desired portion of the comparatively large expanse of membranes exposed;—it being particularly noted that by reason of the substantially circular section of the tubular structure formed by the dilating members, the instrument may be turned on its longitudinal axis when said members are in their collapsed condition, so as to dilate the vagina in any desired plane. Obviously by turning the screw 8 in a direction the reverse of that required for the separation of the members 1 and 2, these are caused to approach each other, until when they are practically in contact the instrument may be withdrawn.

One of the most valuable features of the above described instrument resides in the provision of the fulcrum for the dilating members in or immediately adjacent the plane of the plates 2 and 4, thus making it possible to leave the hymen, which is within a short distance of said plates, practically unaffected by the comparatively wide separation of said dilating members.

I claim:—

1. A speculum consisting of two elongated substantially semi-cylindrical dilating members having laterally projecting portions at one end and a connecting fulcrum in a transverse plane including said portions; and means for swinging one of said members on said fulcrum to separate the distant parts of the members, the parts of said dilating members adjacent their laterally projecting portions being so placed relatively to the fulcrum as to be substantially without dilating action when their distant ends are separated.

2. A speculum consisting of two elongated substantially semi-cylindrical dilating members; semi-annular pivotally engaged plates respectively mounted on one pair of the adjacent ends of said members and lying in a plane including their pivotal line when the dilating members are in their normal positions; and means operative on said plates for separating the adjacent ends of said members distant from said plates.

3. A speculum consisting of two elongated dilating members each having a substantially semi-annular plate at one end extending at right angles and in pivotal engagement with the other plate; and means for swinging one of said members on its pivot relatively to the other to separate their distant ends.

4. A speculum consisting of two elongated substantially semi-cylindrical dilating members each having a laterally projecting plate mounted on one end; a portion of the diametrical edge of one of the plates being concave and the corresponding edge of the other being convex to coact with said first plate as a fulcrum; with means for swinging said plates on such fulcrum to separate their distant ends.

5. A speculum consisting of two elongated substantially semi-cylindrical dilating members each having a laterally projecting semi-annular plate mounted on one end; a portion of the diametrical edge of one of the plates being concaved and the corresponding part of the other edge being convexed to coact with said first plate as a fulcrum; with means acting to hold said members together and also adjustable to swing one of them on its fulcrum so as to separate their distant ends.

6. A speculum consisting of two elongated dilating members of uniform section throughout their length, fulcrumed together at one end; substantially flat plates respectively fixed on said members; a connecting

element fixed to one of the members and projecting over the plate of the other; with a screw mounted in said latter plate and engaging said connecting element for swinging one of the members on the fulcrum to separate their distant ends.

7. A speculum consisting of two equally elongated substantially semi-cylindrical members fulcrumed together at one end and provided with oppositely projecting extensions immediately adjacent said fulcrum, one of the members having a semi-annular element projecting from its extension at an angle to the plane thereof in position to lie over the extension of the other element; with a dilating screw operative between said extension and the element to swing one of the dilating members on its fulcrum.

8. The combination in a speculum of two dilating members together forming a tubular structure; a ring substantially concentric with said structure mounted on one of said members; a projection mounted on the other member and formed with semi-cylindrical, diametrically arranged projections removably fitting correspondingly formed recesses in the first member adjacent the ring; with a screw extending through the ring into the projection of the second member for separating the distant ends of said members.

9. A speculum consisting of two equally elongated substantially semi-cylindrical dilating members together forming a tube of uniform diameter open at both ends; flat laterally projecting plates mounted on said members and having complementary fulcrum portions; and means for swinging one of said members on the fulcrum portion of the other to separate their distant ends.

10. A speculum consisting of two elongated substantially semi-cylindrical dilating members having oppositely projecting semi-annular plates fixed to them respectively at one end and fulcrumed together at their adjacent edges; a tube extending substantially from end to end of one of said members wholly within the same and having an opening for a lamp; an obturator formed to fit the tubular structure constituted by said members without interference from the tube; and means for swinging one of said members on their fulcrum to separate their ends adjacent the lamp opening.

PHILIP A. SHEAFF.

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