May 1, 1945. E. GUTTMANN 2,374,863

VAGINAL SPECULUM

Filed May 7, 1943

Fig. 2.

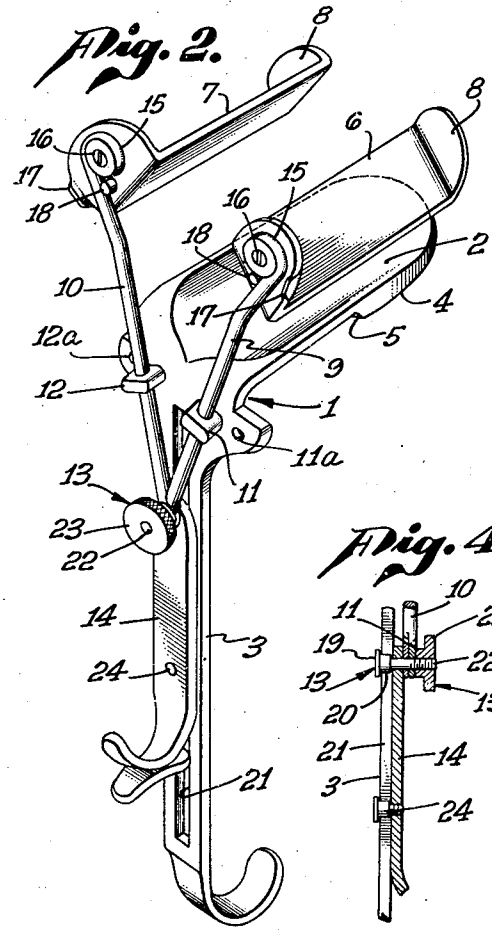


Fig. 1.

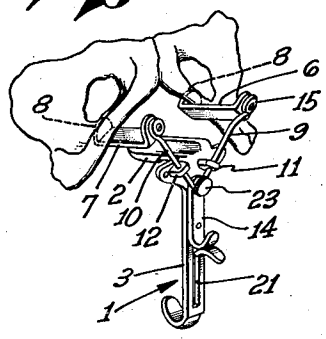
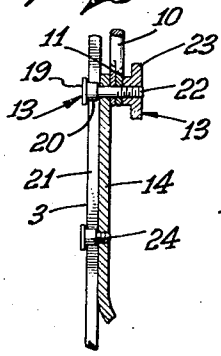


Fig. 4.



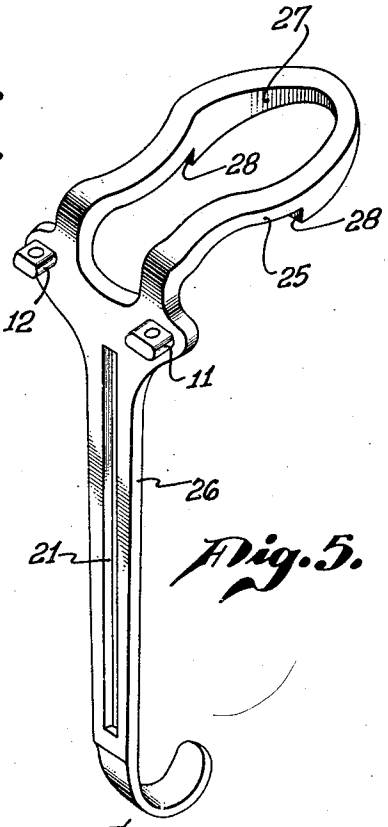


Fig. 5.

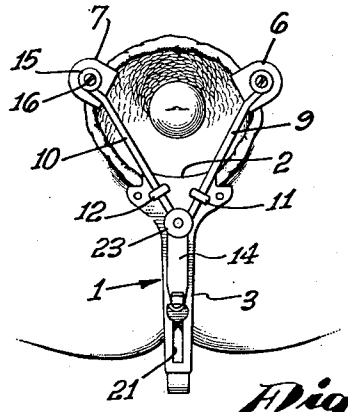


Fig. 3.

EUGEN GUTTMANN,
INVENTOR.

BY Harold E. Stattuck
ATTORNEY.

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VAGINAL SPECULUM

Eugen Guttmann, Los Angeles, Calif.

Application May 7, 1943, Serial No. 485,991

1 Claim. (Cl. 128—20)

My invention relates to a novel construction of vaginal speculum particularly adapted to post-natal inspection and operative purposes in the field of obstetrics. In many types of obstetrical operations and observations or inspections for diagnostic purposes, it is common to use a speculum for the purpose of separating the vaginal walls to expose the parts to be observed or operated upon.

Particularly in post-natal work it is desirable to provide a relatively large field of exposure for the inspection and repair of the vaginal walls and cervix uteri and for this purpose previous types of specula have proved somewhat unsatisfactory. Specula designed for gynecological inspection will not properly serve this purpose since either the blades are so narrow as to allow the flaccid vaginal walls to fold about them, reducing or obscuring the field of observation or operative field, or the specula blades, even if broad enough, are not provided with sufficient anchorage to insure the specula remaining in place unless an assistant to the surgeon is employed to prevent inadvertent removal of the speculum.

It is therefore an object of my invention to provide a speculum particularly adapted for post-natal work, in which the speculum blades are sufficiently broad as to provide adequate support for the vaginal walls to prevent their collapse or folding into obscuring positions while at the same time the blades are provided with means for securely anchoring them behind the pubic bones.

Another object of my invention is to provide a speculum of the character described, in which the blades are so mounted and moved relative to each other as to engage the ischio-pubic rami well down from the apex of the V formed by the rami.

Another object of my invention is to provide a speculum of the character described, in which the anchoring blades are pivotally mounted so as to permit the surface of the blades engaging the pubic bones to be self-aligning to the individual contour of the bones to thus insure adequate engagement of the hook-like ends of the blades securely behind the bones.

Another object of my invention is to provide a speculum of the character described wherein a maximum amount of area of the vaginal walls are exposed for inspection and operative purposes.

Other objects and advantages of my invention will be apparent from a study of the following specifications, read in connection with the accompanying drawing, wherein

Fig. 1 is a perspective view of a vaginal speculum constructed in accordance with my invention and illustrating the manner in which the same is engageable behind and held in place by the pelvic bones;

Fig. 2 is an enlarged perspective view of the speculum illustrated in Fig. 1;

Fig. 3 is a front elevational view illustrating the manner in which the speculum is employed for inspection or operative purposes;

Fig. 4 is a detail sectional view through the handle and slide of the speculum shown in Figs. 1, 2 and 3; and

Fig. 5 is a detail perspective view of a modified form of base plate which may be substituted for the base plate of the speculum shown in Fig. 2.

Referring to the drawing, I have illustrated in Figs. 1, 2 and 3 my speculum as comprising a base member 1 which comprises a relatively broad stationary speculum blade 2 from the rear end of which depends a handle member 3, the handle member 3 preferably extending in a plane at right angles to the plane of the stationary blade 2 so as to be disposed out of the field of vision and operative field when the speculum is in use.

The stationary blade 2 may be of any desired size and configuration though I prefer to form the same as a substantially spoon-shaped member, the inner end of which is reduced in width and rounded to facilitate insertion thereof. The lower surface 4 of the blade 2 is preferably formed with a shoulder 5 disposed a distance away from the handle 3 sufficient to permit the shoulder to engage within the interior of the lower vaginal walls when the speculum is in place therein.

The speculum is provided with a pair of movable blades 6 and 7, each of which is preferably formed as an elongated plate member, the forward end 8 of which is bent upwardly to provide a vertically extending hook portion of substantial height such that when the speculum is in place, as shown in Figs. 1 and 3, the broad hooked ends of the blades 6 and 7 will be disposed not only inwardly behind the pubic bones but also will extend upwardly sufficiently to hook securely behind such bones, as shown in Fig. 1. The length of the blades 6 and 7 must be such that when they are mounted upon the speculum structure, as shown in Fig. 2, there will be ample space along the length of the blade to accommodate the tissues between the vaginal opening and the pubic rami.

Each of the blades 6 and 7 is mounted upon a support bar 9 and 10, respectively, the opposite ends of these bars extending through guide bearings 11 and 12 to a common pivot 13, which is in turn mounted upon and carried by a slide 14 slidably mounted for vertical movement along the handle 3. The guide bearings 11 and 12 are pivotally mounted upon the handle member and are spaced apart laterally such that when the slide 14 is moved downwardly with respect to the handle 3, the blades 6 and 7 will not only be drawn downwardly toward the stationary blade 2 but will also be moved laterally toward each other so that the three blades of the speculum may be

drawn or collapsed into positions relatively close to each other to facilitate the insertion of the instrument into the vaginal passage. Then the slide 14 may be moved upwardly, causing the blades 6 and 7 to simultaneously move relative to the blade 2 both upwardly and laterally with respect to each other to uniformly spread the vaginal walls both vertically and horizontally to provide a relatively large opening through which inspection may be had or operations may be performed.

The blades 6 and 7 may be either stationarily or pivotally mounted upon their support rods 9 and 10, the pivotal mounting being preferred since this allows the blades to orient themselves with the contour of the pubic bones of the particular patient upon whom the instrument is being used and thus insure the presentation of the flat tissue-engaging surfaces of the blades to the tissues, minimizing any crushing or bruising actions and presenting the maximum area of the hooked ends for secure anchorage behind the bones. This arrangement also provides a better spreading of the vaginal walls by allowing the blades to conform with the progressively widening of the lower portions of the pubic arch. One manner of pivoting the blades is illustrated herein as comprising bending the outer ends of the rods 9 and 10 to form an eye as indicated at 15 and inserting through the eye a screw or other bearing member 16 which will insure adequate strength of connection between the rods 9 and 10 and their respective blades while at the same time permitting substantial rotation of the blades about a horizontal axis.

To prevent the blades from inadvertently rotating through such angle as might present the thin edges of the blades to the tissues, I provide stops such as a lip 17 formed upon the up-turned outer end of the blade disposed upon one side of the support rod and a pin 18 disposed upon the opposite side of the rod in such position as will allow relatively free pivotal movement of the blades 6 and 7 through a limited arc of less than 90° so that at no time will the sharp edge of the blades be presented to the tissues.

Means may be provided for locking the blades in their extended position as by forming the pivot pin 13 as shown in Fig. 4 with an enlarged head portion 19 to engage the rear surface of the handle 3 and with a squared portion 20 adapted to project into the slot 21 of the handle while the inner end 22 of the pin is threaded to receive a thumb nut 23 which may be tightened to clamp the slide and the support rods in any desired position along the slotted handle 3. The slide 14 may be retained in its slidable relation along the handle 3 by means of a shouldered screw 24 which extends through the slot 21.

As shown particularly in Fig. 3, when the speculum is in place the interior of the vagina will be exposed throughout its entire area except that portion which is immediately engaged by the blades of the speculum and the vaginal walls and cervix will be readily exposed for inspection and operative purposes.

In view of the flaccid condition of the vaginal walls immediately following child birth, a considerably wider lateral spread may be imparted to the walls than would be normally possible so that the movable blades 6 and 7 must be adapted to engage the pubic rami well down from the apex. While the amount of lateral spread will be limited by the individual size and shape of the pubic rami, it is possible to obtain a relatively large lateral spreading of the vaginal opening by providing extra holes 11*a* and 12*a* for the guides 11 and 12 so that the vertical movement of the slide 14 when the guides are in these outer holes will cause a greater lateral spread and less vertical spread and thus the blades 6 and 7 will engage still further down upon the pubic rami where the bones are a greater distance apart.

For certain types of post-natal repair it may be found that it is desired to expose portions of the lower vaginal walls which might be obscured by the stationary blade 2 and for this purpose a stationary blade of the construction illustrated in Fig. 5 may be used in place of the blade structure 1 shown in Figs. 1 through 3.

The blade structure may be formed as a stationary blade portion 25 having the external contour and shape corresponding substantially to the shape of the stationary blade 2, from the outer end of which depends a handle 26 in all respects similar to the handle 3 as shown in Figs. 1 through 3.

A relatively large sight opening 27 is formed through the blade 26 through which the desired areas may be exposed. The blade portion 25 may be provided with shoulder members 28, if desired.

With this form of stationary blade substituted for the blade 2, the device may be inserted and expanded while the operator observes the lower portions of the vaginal walls to avoid tearing episiotomy wounds which may have been already repaired and also provides ample exposure of any unrepaired wounds to permit their repair.

It will therefore be observed that I have provided a vaginal speculum which is particularly adapted for post-natal work, in which the device is securely anchored in place with assurance against its inadvertent removal, leaving the operator free to perform inspection or operative duties without fear of collapse of his operative field and without the necessity of an assistant to prevent the inadvertent removal of the speculum. In addition, the employment of the relatively wide surfaced blades and the combined vertical and lateral separation of the blades impart the necessary forces to hold the vaginal walls open or well separated without inducing appreciable strains which might tear or enlarge any wounds in these walls.

While I have shown and described the preferred embodiment of my invention, I do not desire to be limited to any of the details of construction shown and described herein, except as defined in the appended claim.

I claim:

A vaginal speculum comprising a plurality of blades adapted for insertion into the vaginal passage, at least one of said blades comprising a broad surfaced blade for engaging the walls of said passage and having a length to penetrate into said passage to a depth sufficient to dispose the inner end of the blade beyond the edge of the pubic bones, and having also a hook member on said end of sufficient length to firmly engage behind the edge of said bones, means mounting said blade for rotation about an axis parallel to said broad surface to permit said surface to conform with the contour of the bone edge at the point of contact, and stop means on said blade and cooperating with said mounting means to limit rotation of said blade to an arc not exceeding 90°.

EUGEN GUTTMANN.