

April 8, 1958

R. J. GLENNER

2,829,649

HEMOSTAT - RETRACTOR

Filed Jan. 17, 1956

2 Sheets-Sheet 1

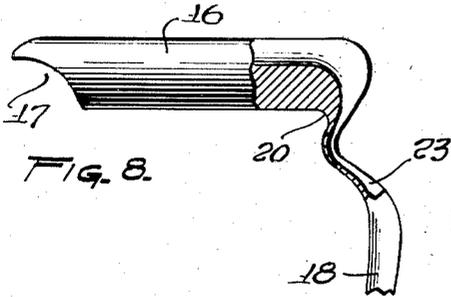


FIG. 8.

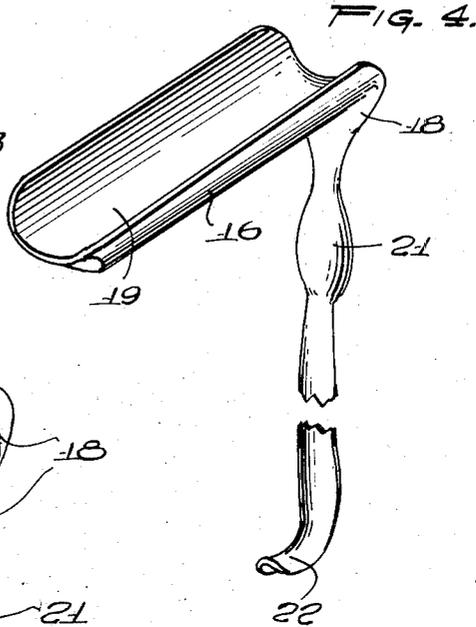


FIG. 4.

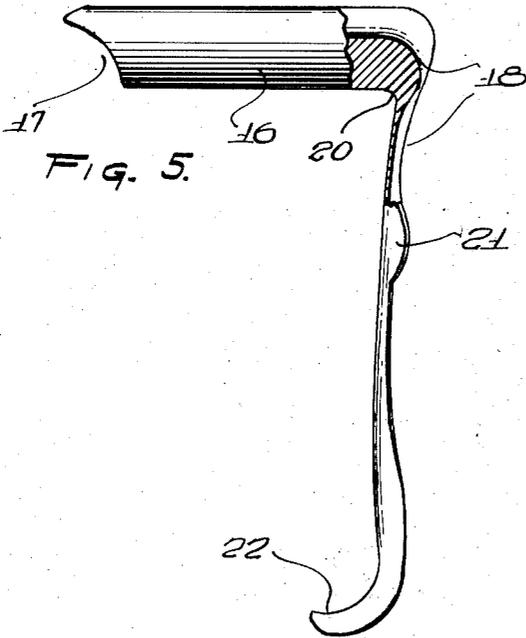


FIG. 5.

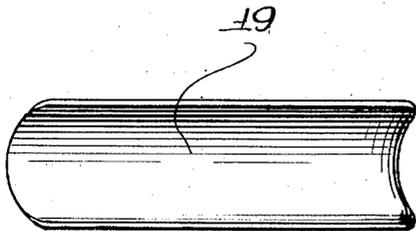


FIG. 7.

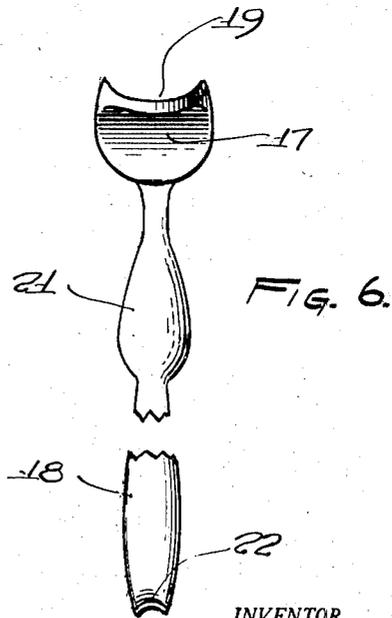


FIG. 6.

INVENTOR.
ROBERT J. GLENNER
BY
[Signature]
ATTORNEY.

April 8, 1958

R. J. GLENNER
HEMOSTAT - RETRACTOR

2,829,649

Filed Jan. 17, 1956

2 Sheets-Sheet 2

FIG. 3.

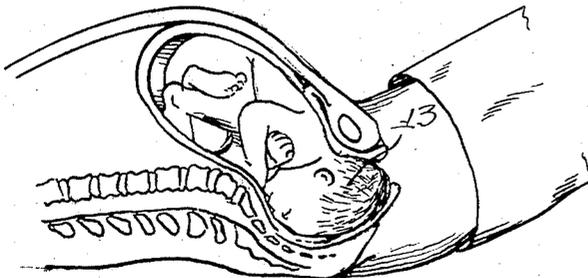


FIG. 1.

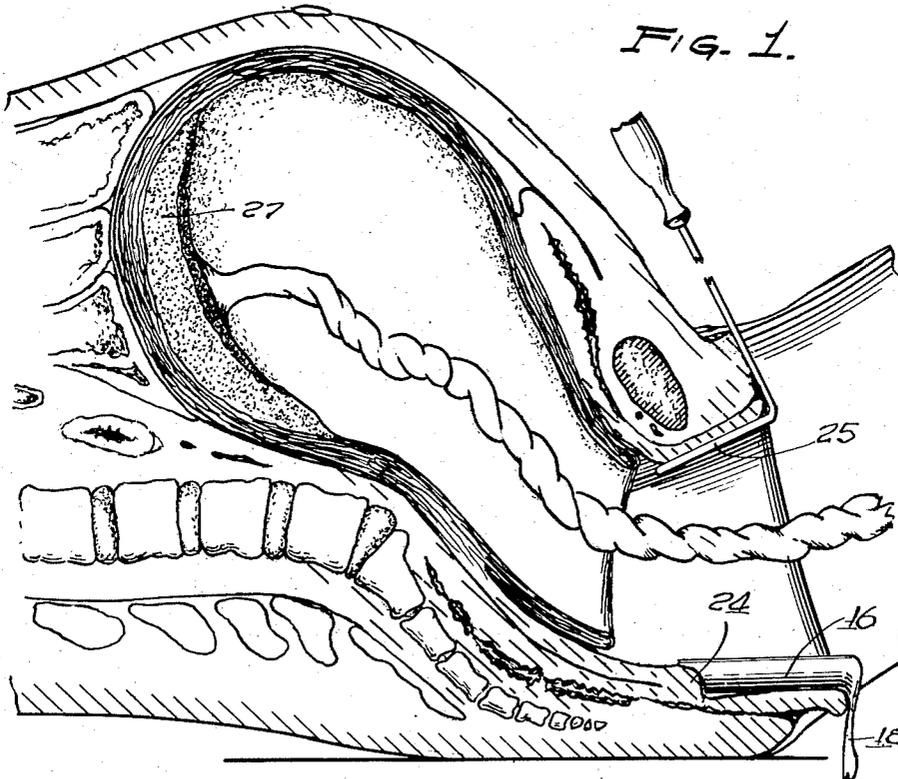
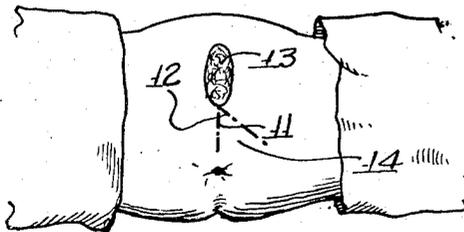


FIG. 2.



INVENTOR.
ROBERT J. GLENNER
BY
Robert J. Glenner
ATTORNEY

1

2,829,649

HEMOSTAT-RETRACTOR

Robert J. Glenner, Chicago, Ill.

Application January 17, 1956, Serial No. 559,660

4 Claims. (Cl. 128—325)

The present invention relates to obstetrical and gynecological instruments utilized primarily by obstetricians, and concerns itself particularly with vaginal retractors which will prevent blood loss in episiotomy.

The birth of a child is accomplished through three recognized stages of labor during which there is usually required the aid of a skilled delivery technician. The first of these stages is a period during which the patient begins to have frequent and severe labor pains and during which the expulsive spasms set in. The patient is then prepared for the delivery and examined for adaptability to normal delivery.

The second stage is said to begin when the uterine cervix is completely dilated and when the patient experiences bearing-down pains. This usually requires the placement of the patient into recumbent position. At this time the child descends into the pelvic cavity producing an increasing dilatation of the vulva. The distention of the vulva may be most marked at its perineal margin, and in order to prevent rupture of the perineum which when such probability is indicated would result in an irregular tear and difficult to arrest blood loss, the attending surgeon performs an episiotomy along a median, lateral, or at a medio-lateral line, thereby enlarging the vulval opening and relieving pressure from the perineum.

From the conclusion of this performance until the proper time arrives for sewing up the episiotomy incision, there may ensue a time lapse of one or more hours, depending upon the completion of the third stage of labor as well as upon the time required to inspect and repair possible lacerations and tears such as are likely to occur during the passage of the child through the birth canal. Meanwhile, the site of the episiotomy section requires to be traversed during expectancy and completion of the third stage, increasing thereby the hazards incident to blood loss and infection.

It is therefore a primary object of this invention to provide an obstetrical instrument of reaction suitable for use over the site of an episiotomy which will possess greater characteristics of self-retention thereat and at the same time prevent or retard by compressive hemostasis continued blood loss during the time of awaiting completion of the third stage of labor and until final repairs to the cervix and vagina are completed.

Another object of this invention is to provide an instrument of the class described which will lodge securely over the site of an episiotomy incision without impairing access to the vulvular canal for the execution of uterine or vaginal wall repair.

Yet another object of the invention is to provide an instrument of the class described having an insert portion which constitutes a substantial preponderance of its total weight and mass, as well as having such insert portion uniquely contoured to adapt underlay of gauze pads in a wrinkle free condition while the top surface of the instrument serves as drainage for fluid discharge.

Yet another object of the invention is to provide an instrument for use during episiotomy which will take a

2

firm and stable lodgment by the simple act of insertion and which will effect hemostatically a dry field and clear visual range to the attending surgeon for the purpose of enabling prompt attention to inspection and vaginal repair.

The foregoing and other objects and purposes of the invention will be more detailedly described during the course of the following explanation, having reference to the accompanying drawings in both of which like reference numerals designate corresponding parts throughout, and in which:

Fig. 1 is a fragmentary longitudinal sectional view through a female body reproduction organs representing conditions following delivery and second stage of labor, with a retractor designed in accordance with the present invention disposed therein;

Fig. 2 is a fragmentary elevational view which illustrates by dotted line indication the alternative locations of episiotomy incisions;

Fig. 3 is a sectional view similar to Fig. 1, but illustrating the birth canal under full dilation and with the perineal wall under distension as where relief by episiotomy is indicated;

Fig. 4 is a perspective view of a retractor in accordance with the present invention;

Fig. 5 is a side elevational view of the retractor with parts thereof in section;

Fig. 6 is a front elevational view of the same;

Fig. 7 is a fragmentary plan view of the retractor insert portion, and

Fig. 8 is a fragmentary view resembling Fig. 5 but of a modified variation of the retractor-hemostat handle portion.

During the second stage of labor, when the fetus has passed into the pelvic cavity, as represented in Fig. 3, a surgical procedure is oftentimes advised, particularly in the case of primiparae, which involves radially incising the perineal wall along the index line 11 or along a medio-lateral line such as at 12. This permits the head of the fetus 13 to protrude promptly through the vulva to a greater extent as well as relieving the strain which had been impressed upon the perineum 14. Also, it facilitates the descent and extension of the fetus through the ensuing phases of the delivery.

The compression upon the surrounding vulval wall during the occupation of its opening by the fetus does itself act as a tamponade to retard loss of blood for this interim, but after delivery is complete the wall area becomes relaxed and blood flow through the incision becomes imminent. Repairing the incision at once would, of course, arrest this blood loss, but at the expense of again restricting the size of the vulval aperture and sacrificing one of the paramount advantages of episiotomy, greater access to the vaginal interior, mucosa membrane etc. where inspection and repair are frequently necessary.

The problem, therefore, is one of keeping the episiotomy open without incurring undue loss of blood to the patient. The importance of averting excessive blood loss cannot be overemphasized. It is recognized by medical authorities as a chief cause of maternal fatalities during and following childbirth. From a study made of clinical reports during the years 1930 to 1942 in the United States, and based upon U. S. Bureau of the Census statistics, puerperal infection accounted for 36% of maternal mortality, toxemia 26% and hemorrhage 28%. Since the loss of blood directly contributes to depletion of resistance with which to combat both infection and toxemia, it therefore is a large predisposing factor to both of these causes and thus, manifestly is responsible for possibly up to three-fourths of all maternal deaths which result from childbirth.

It is the purpose of this invention to diminish the additional blood loss resulting from episiotomy, which loss is known to vary in average cases from 190 to 397 milli-

liters per patient. By reducing this loss to an insignificant level there should follow a material reduction of fatalities attributable to the enumerated causes above. This purpose has been recognized and strived for before, and clinicians have endeavored to clamp and ligate bleeding vessels in other ways, but the time occupied and the inefficiency of other procedures have resulted in little benefit, for while the amount of blood lost per minute during exposure has been reduced, the period of bleeding was increased due to the time consumed in such procedures.

Stuffing a sponge into the wound has been found to soak up the blood so that the loss was not so much in evidence, but as a relief measure this practice only created an illusion of correction.

A marked increase of blood loss after delivery is believed to be induced by changes in the venous circulation when various congestions become relieved. It is therefore all the more important to be able to check the loss during this phase of the delivery and before any episiotomy repair can be undertaken. As soon as the actual delivery is made and even before the umbilical cord is severed, the technician places into the episiotomy breach a substantially weighted semi-cylindrical insert portion of a device such as portrayed in Figs. 4 or 8, after having first laid over the wound one or two layers of sterile gauze. The insert portion or body 16 is a highly polished part-cylindrical solid member about three and one half inches in length and having a major transverse diameter of about one and seven eights inches. Its weight should be between eighteen and twenty ounces whereunder it has been found to exert a suitable hemostatic compression upon the severed blood vessels of the episiotomy to effectively restrain the free flow of blood.

The foremost end of the instrument body 16 is advantageously undercut as at 17 to allow a clearance or bridg-ment for possible displacement accumulations between the mucosa, intercolumnar fascia, and the perineal sections which, following the delivery, may assume displacement and shifting variations on account of the contractions which begin immediately to take place. This bridg-ment permits the trough-like top portion 19 to extend over such displacements 24 without becoming disturbed and assures continuous drainage to take place as well as provide for a clear visual observation range.

The insert body 16 is formed with a slightly reentrant quadrant juncture blending into the trough handle 18 which, in contrast with body 16, is of thin attenuated stock, continuously channeled to carry the drainage feature throughout its length downwardly. The convex surface of the handle is by filleting as at 20, smoothly blended with the adjacent part-cylindrical outer surface of the insert portion. Thus, the reentrant juncture permits the trough handle to repose within the perineurial hollow, out of conflict with possible inspection and repair operations.

In Fig. 8 there is taught a variation of the trough handle design which, while adhering to the reentrant curvature feature of the preferred embodiment, provides nevertheless for an anus region offset designated 23 which is a precaution against possible contamination of the instrument by fecal seepage during the delivery.

The handle may also include a bulbous intermediate section 21 which can be finger controlled by thus grasping threat for effecting retraction. The extremity of the handle 18 is advantageously underslung as at 22 to assure a more positive grip and to assist traction. The weight of the handle portion 18 is preferably about one tenth that of the insert portion 16, so that the stability of the instrument when lodged in the episiotomy breach, as shown in Fig. 1, is thereby made more secure on account of the gravitational preponderance.

While the surgeon awaits expulsion of the placenta 27, denoting completion of the final stage of labor, a period of time may elapse which in some cases exceeds an hour and during which there normally may occur sufficient loss

of blood to endanger the patient. The instant invention when utilized in the manner explained will promptly arrest this bleeding by hemostatically compressing the exposed blood vessels and permit the surgeon to proceed without delay to make the interim inspections and repairs to the canal walls where passage of the fetus or other causes frequently results in surface lesions and abrasions. Thus, the improvement enables the arrest of blood loss due to these surface damages in a more prompt and expeditious manner.

Meanwhile, the hemostat-retractor reposes sheltered and secure in its submerged position, promoting continuous drainage of the discharge fluids and assuring a clear range of view to the operator. When additional retraction is required, an assistant need only grasp the instrument handle and apply the additional force. This is a one handed manipulation, permitting the other hand of the assistant to be used for anterior retraction in the conventional manner as with a tool such as indicated 25, Fig. 1. Thereafter the improved instrument may be relied upon to maintain itself in its placement on account of its several features of self-retentivity pertaining to weight resolution and contour. Contour retentivity is augmented by the encompassment of its part-cylindrical insert body portion by the wall muscles which with completion of the delivery, undergo contraction.

As a consequence, one hand of the operative assistant which ordinarily is required to maintain the posterior retractor becomes freed for other work, such as assisting in suture making or sponging. This efficiency is of great importance to the success of the delivery because the problem of providing necessary assistance to the surgeon is aggravated largely by the limited theater surrounding the patient while in the delivery position.

Employment of gauze layers in the manner explained, is advised because not only do the fabric filaments aid in establishing more promptly a desirable surface clotting condition, but also such condition is reinforced and made to survive even against relative movement of adjacent parts to the incision. Thereafter, when the wound is to be closed, the operator by lifting off the gauze layers, removes the clotted blood as well, and is at once able to proceed with applying the sutures.

While the present invention has been explained and described with reference to illustrated examples of embodiment, it should be understood nevertheless that various modifications and alterations are susceptible of being made without departing from its essential spirit or scope. Accordingly, it is not intended to be limited by the precise language of the foregoing description nor by the illustrations of the accompanying drawings, except as indicated in the hereinafter appended claims.

The invention claimed is:

1. An episiotomy hemostat and retractor instrument comprising an integral metallic unit having a massive insert portion and a relatively thin attenuated handle continuous channel portion, said insert portion including a solid part-cylindrical outer body surface and having a foremost end curvedly undercut to form a bridg-ment and a top surface continuous trough curvature therein, said handle portion constituting an abruptly attenuated continuation at the rear end of said insert portion, and a quadrant juncture portion merging with the trough curvature top surface of said insert portion and the curvature of said handle portion.

2. The combination set forth in claim 1 in which said insert portion is between eight and twelve times the weight of said handle portion, whereby during placement of said insert portion into an episiotomy breach, the gravitational preponderance of said insert portion prevents accidental dislodgment of said retractor.

3. The combination set forth in claim 1 in which said quadrant juncture portion describes an angle exceeding ninety degrees whereby to form a slightly reentrant slope to said handle portion for the purpose of disposing said

5

handle portion protectively within the perineurial concavity of a patient to avoid obstruction.

4. The combination set forth in claim 3 in which said handle portion constitutes a reentrant section extending from said quadrant juncture portion for a distance of about three quarters inch, then reverses at a relatively sharp curvature downward and outward for about an inch, and then curves reentrantly again to conform with the first mentioned reentrant section, whereby to provide a displacement to said handle portion at the proximity of the patient's anus whilst said insert portion is in utility position.

5

10

6

References Cited in the file of this patent

UNITED STATES PATENTS

516,842	Scheerer	Mar. 20, 1894
659,182	Pilling	Oct. 2, 1900
2,666,428	Glenn	Jan. 19, 1954

OTHER REFERENCES

Kny-Scheerer Catalogue; pages 5195-5209, 1912-13.
Stille Stainless Steel Retractors of Scanlon-Morris Company.