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E. C. SMITH
OBSTETRICAL FORCEPS
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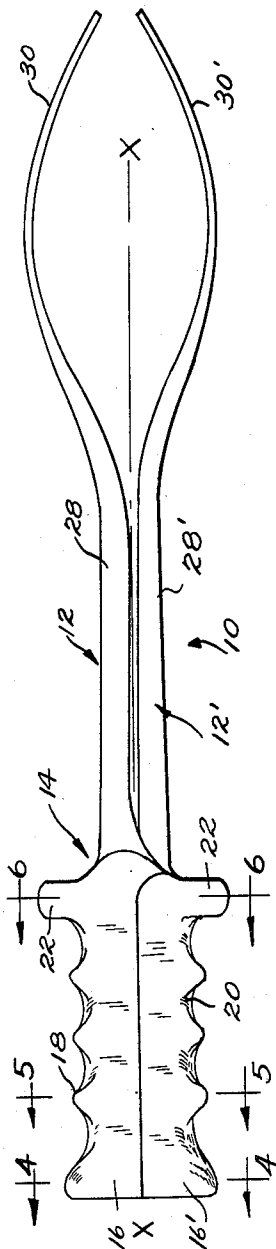


Fig. 1.

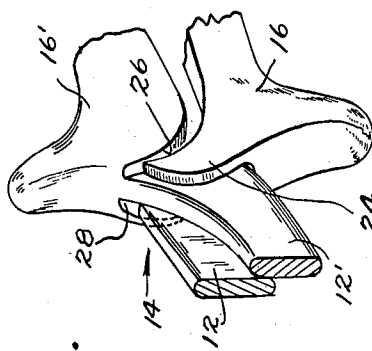


Fig. 3.

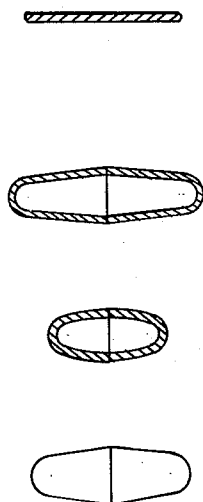


Fig. 4. Fig. 5 Fig. 6. Fig. 7.

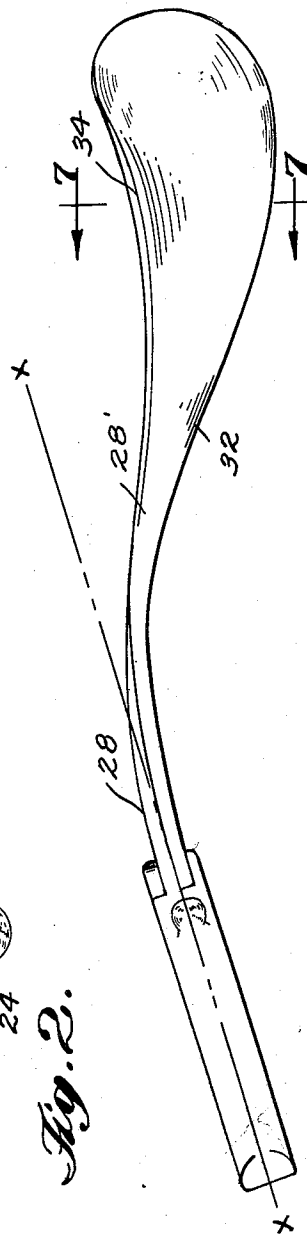


Fig. 2.

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1 Claim. (Cl. 128—323)

This invention relates to obstetrical forceps having new and improved blades which provide for rotation and extraction of the fetal head in a single application.

The delivery of the fetus, particularly from deep transverse arrest and occiput posterior positions of the fetal head, is a relatively dangerous procedure for both the fetus and the mother. The prior art forceps used in such a delivery require a double application of the same forceps—one application for the rotation of the fetal head, and another application of the same forceps or another forceps for the extraction of the fetal head. This procedure adds to the possibility of injury or infection both to the fetus and the mother, as is apparent.

According to the present invention, new and improved obstetrical forceps are provided, which obviate the shortcomings of the prior art obstetrical forceps in deliveries of the above-described type. The forceps provide for their application to the fetal head, rotation of the occiput to an anterior position, and extraction of the fetal head in a single, continuous operation. The use of the forceps according to this invention actually shortens the second stage of labor from several hours to minutes. In addition to using the forceps in persistent occiput posterior and deep transverse arrest positions of the fetal head, the forceps may be used in mid-forceps, low-forceps, and outlet-forceps applications, and also on the after-coming head in breech presentations.

An object of this invention is to provide obstetrical forceps having a new and improved blade structure.

Another object of this invention is to provide obstetrical forceps of the scissors type having elongated blades with opposing arcuate extents at the end thereof defining cephalic curves when viewed in plan, and having concave upper edges defining pelvic curves, the blades having an axially offset, downwardly extending curves in elevation, defining a perineal curve which terminates at the arcuate extents.

Other objects of this invention are: to provide obstetrical forceps which have blade configurations defining cephalic, perineal, and pelvic curves; which are utterly reliable and satisfactory in use; and, which are of inexpensive construction.

Still further objects, novel features, and advantages of this invention will become apparent in the specification, claim, and accompanying drawings, wherein:

FIGURE 1 is a plan view of the obstetrical forceps according to the present invention; and,

FIGURE 2 is a side elevation view of the forceps in FIGURE 1, showing the novel configuration of the blades;

FIGURE 3 is a perspective view of the joint assembly of the forcep blades;

FIGURES 4, 5, and 6, are section views taken along lines 4—4, 5—5, and 6—6 respectively in FIGURE 1; and,

FIGURE 7 is a view taken along line 7—7 of FIGURE 2.

Reference is now made to the accompanying drawing wherein like numerals refer to similar elements.

In FIGURE 1 there is shown, in plan, the obstetrical forceps 10 according to this invention, having blades 12 and 12' which are pivotable at a joint 14 intermediate their ends. Disposed at one end of the blades 12, 12' are integral handle portions 16, 16' respectively. The handle portions 16, 16' have alternating ridges 18 and recesses 20 therealong to provide a firm gripping sur-

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face. Additionally, there are provided transversely extending guide fingers 22 adjacent the inner end of the handle portions 16, 16', to further enhance the ease of gripping the forceps 10.

The handle portions 16, 16' are preferably of hollow construction along at least a portion of their length, as shown in FIGURES 5 and 6. This construction affords a relatively light-weight handle as is apparent.

Referring now to FIGURE 3, the pivot joint 14 is shown wherein the blades 12 and 12' are detachably pivotable one to the other, in order that adjustment can be made to correct asynclitism, as necessary.

The blade 12 has an extending finger 24 which engages a cooperating actually curved recessed portion 26, in the handle 16'. The blade 12' extends intermediate the sides thereof and has a second curved recessed portion 28 opposite to the recessed portion 26. The blade 12 is pivotally engageable in the recessed portion 28, and is also curved at its end to provide a mating fit. The blade 12' extends from the handle 16' adjacent the finger 24 and the blade 12 which extend from the handle 16. As is apparent, the blades 12, 12' are separable, but when engaged as shown in FIGURE 3, they are pivotable one relative to the other. Accordingly, the finger 24 defines with the blade 12 a U-shaped recess (FIGURE 3); and, by virtue of the engagement of the blade 12' in this recess, the simultaneous longitudinal and pivotal movement is thereby provided, as is apparent. Suitable equivalent joint structures will be apparent to those skilled in the art.

Referring again to FIGURE 1, the blades 12, 12' extend from the handle portions 16 and 16' respectively in a generally parallel manner as viewed in plan, throughout the extent thereof designated by numerals 28, 28'.

The blades 12 and 12' then diverge outwardly and then inwardly in opposed relationship forming arcuate extents 30 and 30' respectively. The arcuate extents 30 and 30' define the cephalic curves which are adapted to engage the head of the fetus, as will be understood.

Turning now to FIGURE 2, the forceps 10 are shown in elevation, wherein the blades 12 and 12' are curved according to the present invention.

The handles 16 and 16' define an axis X—X as shown in the elevation view in FIGURE 2. According to this invention the extent of 28, 28' of the blades 12, 12' are downwardly curved relative to this axis X—X providing an offset arrangement relative thereto, as shown in FIGURE 2.

The extents 28, 28' of the blades 12, 12' thereby are provided with an unusually long perineal curve which also forms about half of the extents 30 and 30' along their respective lower edges 32. This feature facilitates application of the forceps to the maternal pelvis and the fetal head, and facilitates rotation of the fetal head by rotating the handle portions 12, 12' through a very small arc.

The arcuate extents 30 and 30' define generally the pelvic part of the blades in elevation, wherein the arcuate extents 30, 30' are provided with concave upper edges 34 which define the pelvic curve. The concave curved upper edges 34 of the extents 30, 30' are very shallow, but sufficient to allow application of the forceps in the inferior strait of the mother's pelvis. Such an arrangement facilitates rotation of the blades 12, 12' and reduces the likelihood of injury to the maternal tissue.

By way of example, very successful results have been obtained with obstetrical forceps 10 having an overall length of 18 inches, a perineal curve 32 of about 14¾ inches measured along a parallel surface, the deepest portion of this curve being 1¾ inches from the parallel surface, together with a maximum transverse distance between the opposing arcuate extents of 2¾ inches when in the closed position. The long and shallow perineal

curve allows easy application of the forceps to the maternal pelvis and to the fetal head, and facilitates rotation of the fetal head by allowing the turning of the forceps' handles through a very small arc. The overall weight of the forceps 10 is preferably about 2 1/4 pounds which is heavier than most forceps. The extra weight is uniformly distributed throughout the instrument and affords greater strength to the shanks and blades, thereby preventing slipping and spreading of the blades when traction is made, this lessens injury to the fetal head, and allows the strength for traction to deliver the fetus after rotation has been accomplished.

Such an obstetrical forceps 10 having the offset arrangement of the blades 12, 12' provides for rotation and extraction of the fetal head in one application, as described herein. Extraction of the fetus can be accomplished, after rotation of the occiput to an anterior position, with the pelvic curve "upside down" as in an occiput posterior.

It will, therefore, be seen that there has been provided by this invention a structure in which the various objects hereinbefore set forth, together with many practical advantages are successfully achieved.

As various possible embodiments may be made of the mechanical features of this invention, all without departing from the scope thereof it is to be understood that all matters herein set forth or shown in the accompanying drawings is to be interpreted in an illustrative, and not in a limiting sense.

What is claimed is:

Obstetrical forceps comprising: first and second forcep blades having cooperating handle portions at one end thereof, joint assembly means for said blades adjacent said handle portions providing longitudinal movement of said blades with respect to one another simultaneous with pivotal movement, one of said blades including a finger portion aligned for engagement with the adjacent blade to limit forward movement of said adjacent blade when said handle portions abut one another, said blades

being of rigidly normally unyielding construction, and as viewed in plan when in the closed position extending along the longitudinal handle axis for a portion of the length thereof, thence merging into opposed arcuate extents defining cephalic curves for engagement with the head of a fetus, said blades in longitudinal elevation being downwardly offset relative to the longitudinal handle axis and defining a downwardly facing perineal curve along the bottom edge of said blades, said perineal curve having a maximum perpendicular distance from the point of zero slope thereof to a straight line from the bottommost extent of said handle portions tangent to the bottommost edge of said arcuate extents, of 1 3/4 inches; said blade portions from the handle portions to the opposed arcuate extents being of a length sufficient to accommodate aftercoming head in breech delivery, the high, mid and low positions of the fetal head, and to correct persistent occiput posterior and transverse positions and delivery of the fetus head in a single application by virtue of said shallow perineal curve and rigid blade construction.

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