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OBSTETRICAL DELIVERY INSTRUMENT

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2 Sheets-Sheet 1

Fig. 1

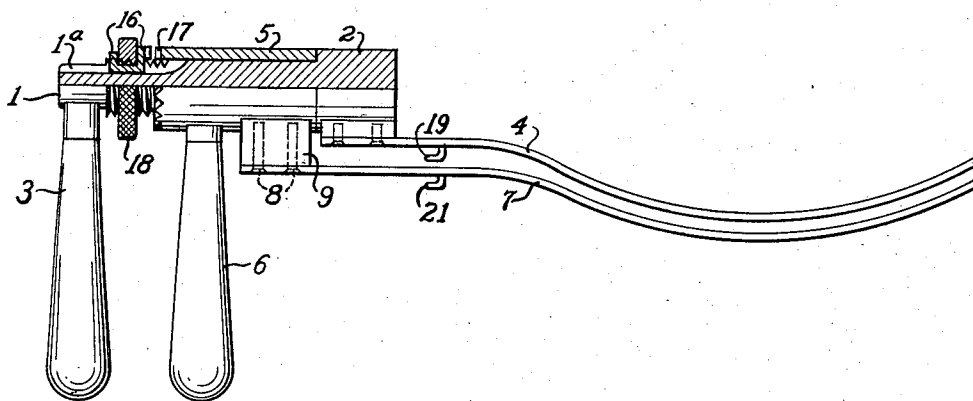
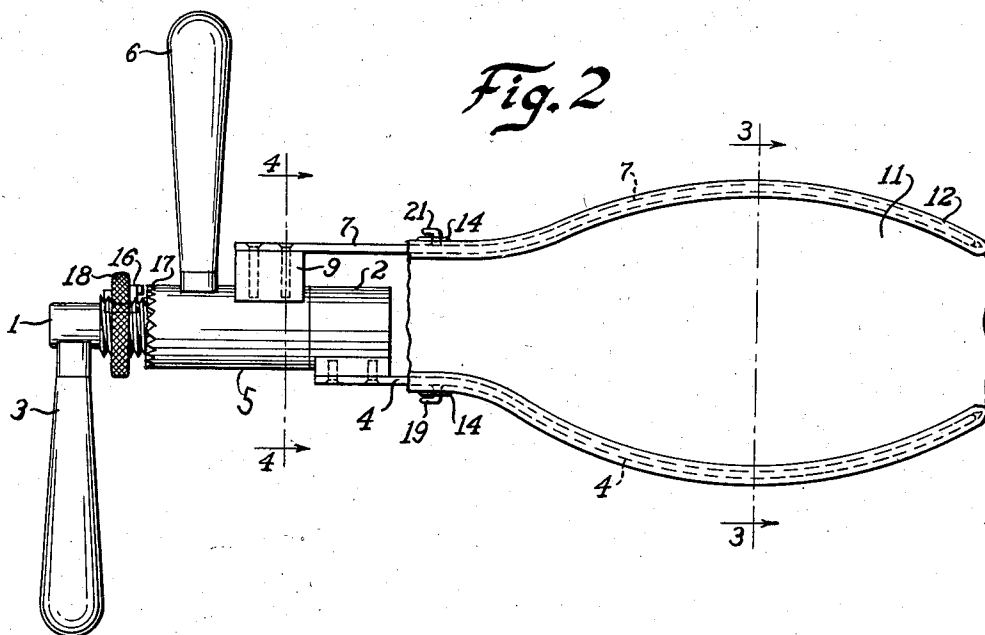


Fig. 2



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OBSTETRICAL DELIVERY INSTRUMENT

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4 Claims. (Cl. 128—361)

The invention here disclosed is a new type of obstetrical instrument in which there is utilized a pair of metal strips appropriately curved and suitable to be inserted alongside the unborn child with a fabric hood attached thereto and carried along therewith, the device including means for rotating the metal strips around the child's head to carry the fabric hood around the child's head so that the necessary traction for withdrawal is applied, not through metal blades, but through the fabric hood.

The prior art of obstetrical birth instruments dates back at least into the tenth century of the Christian era when Arabian physicians used a single blade as an aid in delivery, and to the early 1600's when the first double bladed forceps were used. There has, however, been almost no change in the construction or mode of operation of forceps since the first double bladed construction was utilized. Unfortunately, however, such metal forceps are extremely hazardous for both mother and child. Not infrequently the child's head is crushed, inflicting fatal injuries, or severe damage is done leaving the child mutilated or crippled for life; or serious laceration of the mother results, frequently making another pregnancy impossible. These difficulties are in large part due to the fact that the metal of the forceps is in direct contact with the child's skull, and there is no way of fitting the forceps to the changing contours and sizes of successive infants, and even adaptation to varying sizes of birth canals is difficult and unsatisfactory.

The present invention avoids all use of hinged or double bladed forceps and instead utilizes a fabric hood, preferably a rubberized canvas structure, in combination with a pair of light strips of metal sufficient to carry the canvas hood alongside of the child, whether head presentation or breach presentation, whereafter by rotation of the curved metal strips the hood is carried, in utero, around the child's head if it is a head presentation, or around the entire child including the head if it is a breach presentation, so that the child is held in a compact, snug bundle with no undue concentration of traction pressure on any one portion of head or body. By this procedure no clamping pressure is applied to the infant's skull, and traction pressure is evenly and uniformly distributed over the child's head by virtue of the semi-elasticity of the hood fabric. In this way there are no metal members in contact with the child's head, no concentration of harmful pressures on any one spot, no possibility of crushing the child's head, a minimum of added thickness to the child's head, quite different from heavy metal forceps, thereby reducing the bulk of child and delivery aid which must pass through the birth canal.

The device of the invention consists of a shaft and concentric sleeve each carrying a curved metal strip. There is also provided a fabric hood having pockets which can be slipped over the respective strips, and grommets to be fastened over hooks at the base end of the strips. The sleeve and concentric shaft are each provided with stout handles which upon rotation of the shaft may be brought together at the same time that the strips are

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together and parallel to permit easy insertion of the strips and hood alongside of the child, whereafter the two handles may be used to rotate the sleeve with respect to the shaft, and to rotate the respective strips alongside of the child or the child's head, thereby carrying the edges of the hood around the child and wrapping the child more or less fully within the hood. The stiffness and flexibility of the strips insures proper positioning of the hood, and the attachment of the hood to the strips permits of the application of withdrawing traction which is substantially uniformly distributed over the child's head and even under the chin, yet without the application of direct pressure from metal members. Much greater tractive force may then be applied with safety than is possible with the prior used "forceps."

By the device of this invention a fabric hood is carried alongside of an unborn child by attachment to relatively stiff but flexible inserting members, whereafter by rotation of the members the fabric hood is wrapped around the child and then by the application of appropriate tractive force the child may be withdrawn through the birth canal. Other objects and details of the invention will be apparent from the following description when read in connection with the accompanying drawings, wherein

Fig. 1 is a side view, partly in section, of the device showing the shaft, sleeve, and blades in juxtaposed position with the hood removed, ready for insertion of the strips into pockets in the fabric sleeve;

Fig. 2 is a similar view with the sleeve and blade partially rotated with the hood in place;

Fig. 3 is a sectional view of the hood in place, nearly completely rotated, as around a fetal head, along the lines III—III of Fig. 2;

Fig. 4 is a section of shaft, sleeve, and strips along the lines IV—IV of Fig. 2; and

Fig. 5 is a view of the shaft and sleeve showing the clamping member.

In the construction of the device there is provided a shaft member 1 having an enlarged shoulder 2 and a handle 3. To the enlarged shoulder 2 there is attached a strip member 4 having a straight line portion attached by screws to the shoulder 2 and a curve in the free end suitable for surrounding a child's head. Around the shaft member 1 there is provided a sleeve member 5 having an attached, second, handle 6. To the sleeve 5 there is attached a second blade member 7 attached to the sleeve 5 by screws 8 and a fitting plate member 9. This blade likewise is attached at the end of a straight portion and has the free end curved like the first described blade. There is also provided a hood member 11 having pockets 12 at each edge, and grommets 14 at the upper end of each of the pockets 12. The hood 11 may be a flat square strip of fabric or it may have one or more gores sewed into it to make a better fit around the child's head. The hood 11 may be of almost any desired fabric provided it has sufficient strength to withstand the traction forces. However, the hood 11 is preferably made of a very stout grade of rubberized canvas, in part because of the very much reduced risk of tearing and in part because of the greater ease of sterilization. Between the handles 3 and 6 there is provided a clamp which is better shown in Fig. 5. The upper end of the shaft 1 is recessed at 1a and a shoulder screw 15 is inserted, the screw 15 serving in part to hold the handle 3 in place and in part as a guide for an L-shaped locking member 16. The sleeve 5 has serrations 17 on the upper end fitting similar serrations on the lower side of the L-shaped locking member 16. There is also provided an internally threaded and externally knurled ring member 18 which fits over the threads on the end of the shaft member 1.

The handles 3 and 6 may be of any convenient material such as wood or metal or molded plastic or the like,

it being desirable that they have an ample strength and be easy to sterilize.

In the operation of this device, the blades 7 and 4 are laid side by side, or nearly so, as shown in Fig. 1. The pockets 12 in the hood 11 are then fitted over the blades 7 and 4, and the grommets 14 are fitted over hook members 19 and 21 as is particularly well shown in Figs. 2 and 3. The hood is most easily fitted over the strips 4 and 7 if they are not quite in the position shown in Fig. 1 since the engagement of the grommets with the hooks is easier if both hooks are fully exposed. When the hood is properly placed and attached to the hooks, the blades 4 and 7, within the hood pockets, are brought into close juxtaposition and the strips and the attached hood are inserted alongside of the fetus. It will be noted that the strips 4 and 7 are, if made of a good grade of spring steel, sufficiently strong in a thickness of $\frac{3}{32}$ of an inch or even less and a width of about $\frac{7}{8}$ of an inch. The curved shape of the strips permits of ready insertion alongside of the child's head. When the hood and strips are properly placed, the handles 3 and 6 may be grasped by the obstetrician and the sleeve 5 rotated around the shaft 1 carrying the blade 7 with it, or vice versa. This procedure draws the fabric of the hood 11 around the child's head and rotation may be continued through most or the whole of 360° , or even more, depending upon the relative size of the hood and the child's head. When the hood is snugly wrapped around the child's head, traction may be applied to the handles 3 and 6, this traction being transmitted to the blades 4 and 7 through the hooks 19 and 21 and the grommets 14 to the fabric hood 11. Under these circumstances there is, except at only one point, no greater thickness than that of the rubberized fabric between the child's head and the walls of the birth canal. Accordingly, a minimum of additional bulk is present to be withdrawn. In addition, the hood, especially if it has gores sewn in it, fits so snugly around the child's head that the withdrawal forces are very uniformly and evenly distributed over a major portion of the head surface. As a result, much more than the 40 pounds of tractive effort previously considered to be the top limit may be applied to bring the child's head through without danger to the child or to the mother, and minor movements of the partially formed skull bones of the child's head with respect to each other are permitted in a fashion which substantially reduces the head size in a way which is impossible with the ordinary metal forceps. With the head extracted, the remainder of the delivery is easily completed.

The above described embodiment is particularly suitable for a head presentation. When a breach presentation is found, another embodiment of the device, with somewhat longer strips 4 and 7 with a double curve and a longer hood, may be utilized. In this embodiment a portion of the hood surrounds the head and another portion of the hood surrounds the body of the child holding both arms and legs firmly against the torso, thereby permitting easy withdrawal of the body first, and bringing the head along without tractive forces upon the neck or spine, all of the tractive force being applied to the upper side or top of the child's skull. This procedure avoids all difficulties with arms and legs, avoids all danger of injury to arms or legs, avoids all tractive pull on neck and spine, and permits of a simple, easy delivery without necessity of turning the child first. It will be evident from this description that the dangers of fatal or serious injury to a breach baby are no greater than

with a normal head presentation baby, and the device brings the dangers of breach delivery to a value no greater than an ordinary head presentation.

By the device in its several embodiments as above disclosed, all contact of metal with a child's head in an assisted delivery is avoided and tractive forces are uniformly and evenly spread over the child's head, or over the entire body in a breach presentation, thereby reducing the dangers of an instrument delivery by several orders of magnitude and making it only slightly more difficult than a normal delivery.

While there are above disclosed but a limited number of embodiments of the device of the present invention it is possible to provide still other embodiments without departing from the inventive concept herein disclosed, and it is therefore desired that only such limitations be imposed on the appended claims as are stated therein or required by the prior art.

The invention claimed is:

1. In combination, a pair of slim curved strips, means for journaling said strips on a common axis, having end members adapted for relative rotation, a fabric hood fitted thereover, and means for rotating the strips with respect to each other and thereby wrapping the said hood around a fetal member.

2. An obstetrical delivery instrument comprising a pair of insertable strips, means for journaling said strips on a common axis, a flexible fabric hood member adapted to be attached thereto and the combination inserted alongside a fetus together with a shaft and sleeve respectively attached to said strips, for carrying said strips and handles respectively mounted on said shaft and said sleeve for the rotation of said strips around a fetus to wrap said fetus in said hood for withdrawal through a birth canal.

3. A surgical instrument comprising, in combination, a shaft member having a shoulder, a sleeve therearound, handles attached to said sleeve and said shaft at right angles to the axes thereof, a pair of strips having straight portions and curved portions attached respectively to said shaft and said sleeve, and a flexible fabric hood member having pockets adapted to be slipped over said strips whereby said hood is carried by said strips, grommets adjacent said pockets, and hook attached respectively to said strips adapted to cooperate with said grommets for holding said hood in place.

4. A surgical instrument comprising, in combination, a shaft member having a shoulder, a sleeve therearound, handles attached to said sleeve and said shaft at right angles to the axes thereof, a pair of strips having straight portions and curved portions attached respectively to said shaft and said sleeve, a flexible fabric hood member having pockets adapted to be slipped over said strips whereby said hood is supported by said strips, grommets adjacent said pockets, and hooks attached respectively to said strips adapted to cooperate with said grommets for holding said hood in place, and a lock member cooperating between said shaft and said sleeve for locking the respective strip members in position after wrapping said hood around a fetal body member.

References Cited in the file of this patent

UNITED STATES PATENTS

322,198	Poynor	July 14, 1885
713,166	St. Cyr	Nov. 11, 1902
1,782,814	Froehlich	Nov. 25, 1930
2,639,712	Miseo	May 26, 1953
2,755,806	Greenberg	July 24, 1956