Oct. 29, 1940. F. A. LA BRECK 2,219,424

OBSTETRICAL DELIVERY FORCEPS

Filed Nov. 6, 1939 3 Sheets-Sheet 1

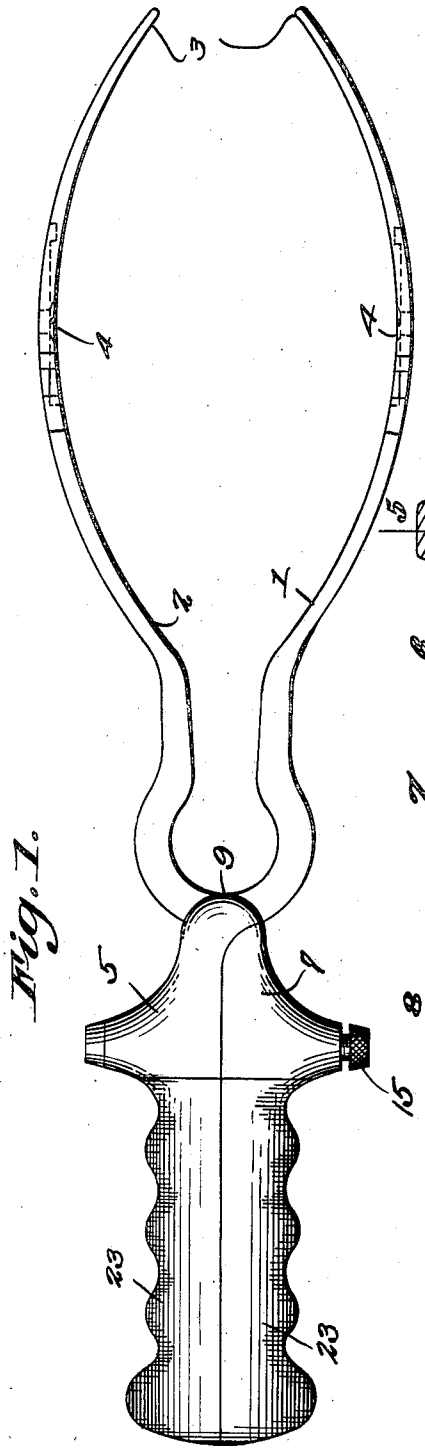


Fig. 1.

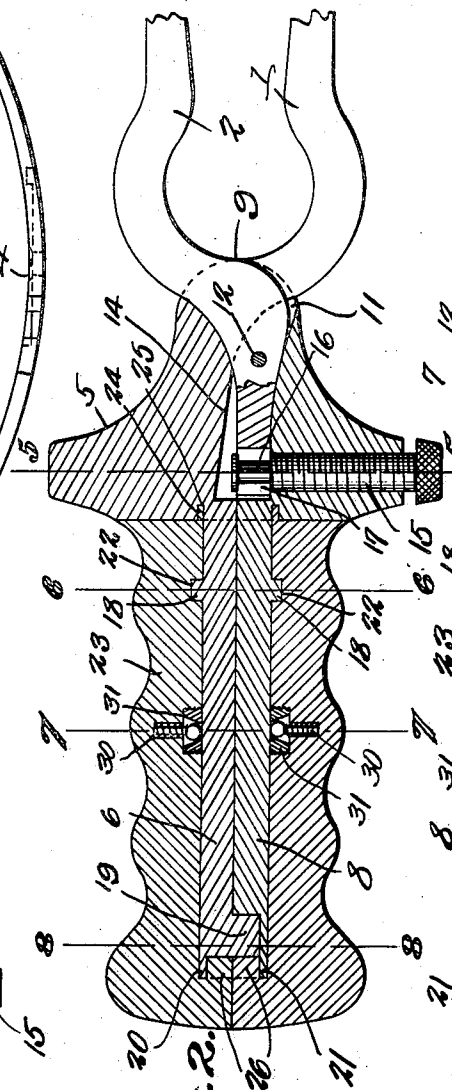


Fig. 2.

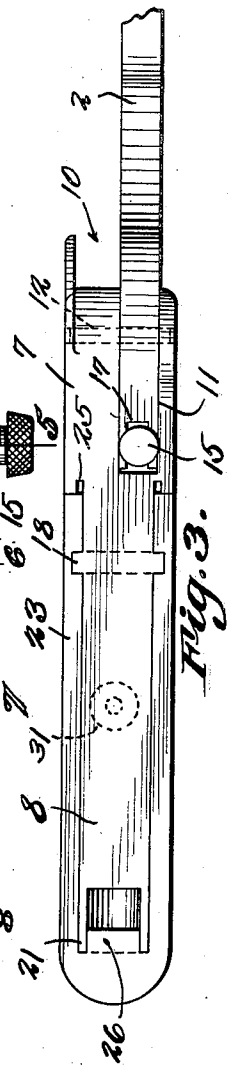


Fig. 3.

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OBSTETRICAL DELIVERY FORCEPS

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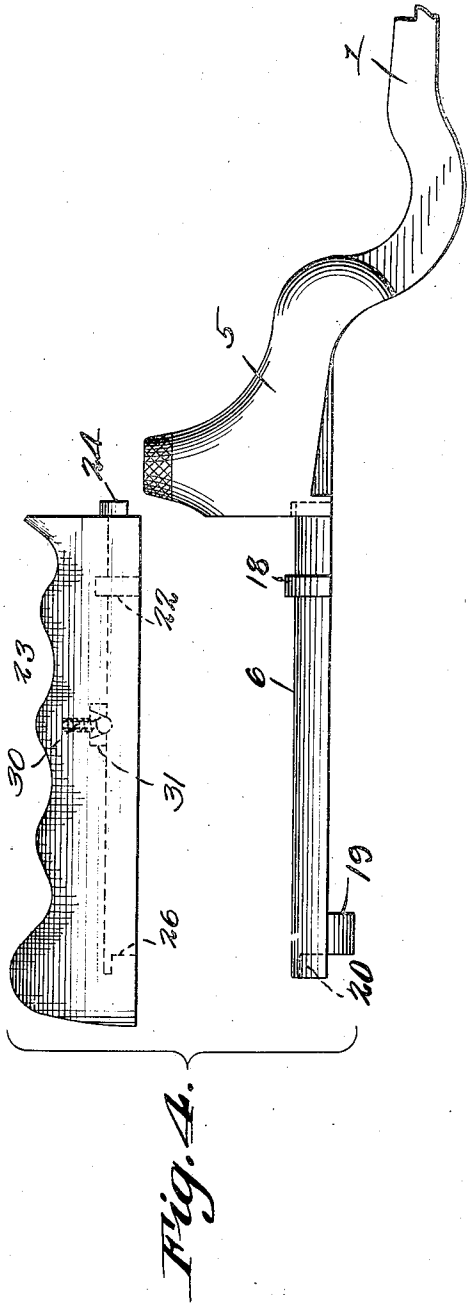


Fig. 4.

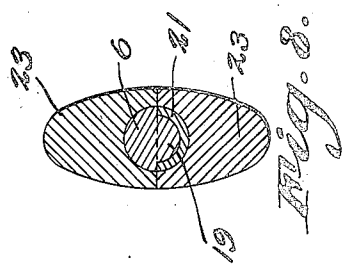


Fig. 8.

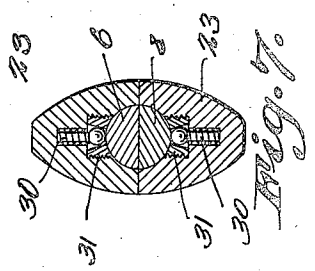


Fig. 7.

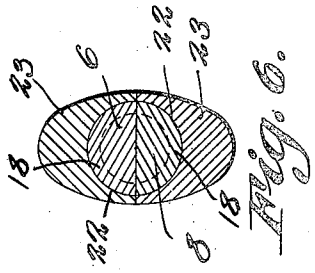


Fig. 6.

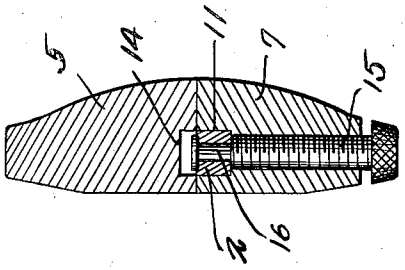


Fig. 5.

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OBSTETRICAL DELIVERY FORCEPS

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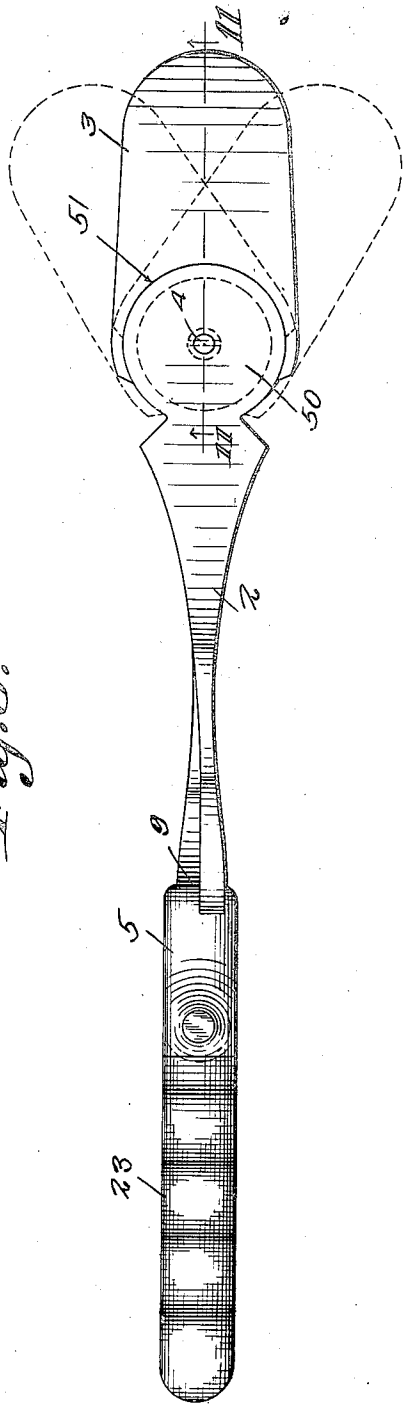


Fig. 9.

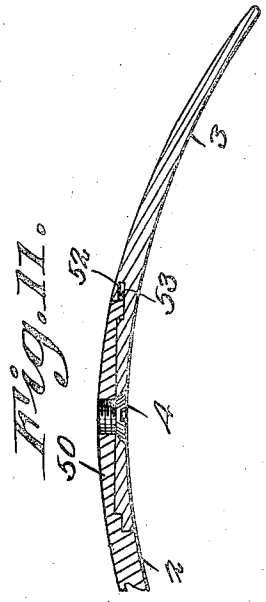


Fig. 11.

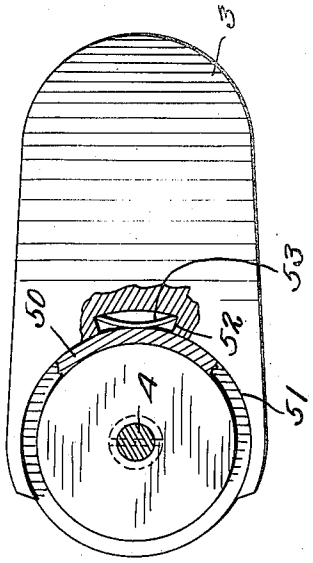


Fig. 10.

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UNITED STATES PATENT OFFICE

2,219,424

OBSTETRICAL DELIVERY FORCEPS

Frank A. La Breck, Eau Claire, Wis.

Application November 6, 1939, Serial No. 303,116

4 Claims. (Cl. 128—352)

This invention aims to provide a pair of obstetrical delivery forceps wherein axis traction is combined with universally jointed action, the instrument being capable of being applied and manipulated as easily as other forceps now in use. A further object of the invention is to provide a pair of obstetrical delivery forceps wherein but one application of the instrument will be required to rotate the head from occipital posterior to occipital anterior position, or vice versa, the blades of the forceps automatically changing, to required pelvic curve for delivery.

Another object of the invention is to provide a device of the class described which will effect equal distribution of pressure throughout the vaginal tract, episiotomy often being rendered unnecessary. The device is so constructed that it eliminates the possibility of the head reverting back to its original position while changing the forceps, a condition which sometimes arises with instruments constructed otherwise than as set forth in this application.

Another object of the invention is so to construct a pair of obstetrical forceps that one application of the instrument, only, will be necessary, the chances for infection and trauma being reduced. The device eliminates a stiff bond between the head of a child and the physician's hand, the construction being such, as indicated in Figs. 9, 10 and 11, that during traction, the head can rotate, flex or extend to a favorable outlet, there being no restriction due to a tight grip of the physician's hand on the forceps. Another object of the invention is so to construct the instrument that, by rotating the grips through 90 degrees, the shanks of the forcep levers will be locked together, to prevent the working portions of the levers from opening.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the present invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the drawings:

Fig. 1 shows in top plan, a pair of obstetrical forceps constructed in accordance with the invention;

Fig. 2 is a longitudinal section wherein parts appear in elevation;

Fig. 3 is a plan view showing one member of the forceps, parts being broken away;

Fig. 4 is a composite elevation showing one of the lever members of the forceps, and its grip, in spaced relation to each other;

Figs. 5, 6, 7 and 8 are cross sections taken, respectively, on the lines 5—5, 6—6, 7—7 and 8—8 of Fig. 2;

Fig. 9 is a side elevation illustrating different positions which the blades may assume during the rotation of the head from occipital posterior to occipital anterior position, or vice versa;

Fig. 10 is an elevation of one blade, wherein parts are broken away;

Fig. 11 is a section on the line 11—11 of Fig. 9.

The forceps disclosed comprises levers 1 and 2, terminating in circular, disk-like heads 50, received in correspondingly shaped recess 51 formed in blades 3, the blades and the heads being connected by pivot elements 4, for swinging movement in a direction at right angles to that in which the levers open and close. The blades 3 are capable of assuming the positions shown in Fig. 9, to facilitate flexion, extension, and rotation of the head of the infant from occipital posterior position to occipital anterior, and vice versa. An undercut recess 52 is formed in each blade 3, and receives a bowed brake spring 53, bearing in its intermediate portion on the edge of the lever head 50 and preventing too free a movement of the blade under conditions well understood by those skilled in the art.

The lever 1 merges integrally into an enlarged body 5, having a rearwardly-extended, semi-cylindrical shank 6. A body 7 for the lever 2 is provided, and has a semi-cylindrical shank 8, corresponding to the shank 6 of the body 5. The levers 1 and 2 cross, as shown at 9, the bodies 5 and 7 of the respective levers being notched at their ends, as shown at 10, each to receive the other lever, a detachable fulcrum connection between the levers thus being afforded, as is common in the art.

At the will of an operator, the lever 2 can have relative movement, with respect to the body 7, to produce opening and closing movement of the lever 2 with respect to the lever 1. This opening and closing movement is not to be confused with the opening and closing movement which results from the manipulation of the grips 23, hereinafter described.

The body 7 is supplied with a longitudinal recess 11, receiving the rear end of the lever 2, the

lever being connected with the body, at a point intermediate the ends of the lever, and near the rear end of the lever, by a fulcrum element 12. The body 5 of the lever 1 is supplied with an internal recess 14, which, receiving the rear end of the lever 2, permits opening and closing movement of the lever 2 with respect to the lever 1, on the fulcrum pin 12. An adjusting member 15, such as a screw, is threaded into the body 7 of the lever 2, transversely thereof, the screw being provided at its inner end with a reduced neck 16, rotatably received in a notch or opening 17, formed in the rear end of the lever 2.

On their outer surfaces, the shank 6 of the lever 1 and the shank 8 of the body 7 are supplied with transverse ribs 18, located adjacent to the respective bodies 5 and 7. On its inner or flat side, the shank 6 has a transverse, laterally projecting, semi-cylindrical boss 19, and to the rear of the boss, the shank 6 is provided with a semi-cylindrical, arcuate flange 20. At its rear end, the shank 8 of the lever 2 is provided with a correspondingly shaped flange 21, receiving the boss 19 on the shank 6 of the lever 1.

On the shanks 6 and 8, grips 23 are mounted for rotation, transversely of the shanks, the grips having longitudinal grooves receiving the shanks, and having transverse grooves 22 which receive the ribs 18 of the shanks. At its forward end, each grip 23 is supplied with a semi-cylindrical, trough-shaped, longitudinally-projecting flange 24, the flanges being received in correspondingly shaped grooves 25 in the rear ends of the bodies 5 and 7. Near their rear ends, the grips 23 have longitudinally extended, semi-cylindrical projections 26, the projection 26 of one grip being received within the flange 20 of the shank 6, and the projection of the other grip being received within the flange 21 of the other grip.

In order to prevent the grips 23 from turning too readily on the shanks 6 and 8, spring-pressed brake pins 30 are mounted for reciprocation in the grips, transversely thereof, the pins having rounded heads adapted to bear on the outer surfaces of the parts 6 and 8, the heads of the pins working through the conical bores of bushings 31, threaded into the grips.

By advancing or retracting the screw 15, the lever 2 can be adjusted in or out on its pivotal mounting 12, with respect to the lever 1, and the forceps, therefore, can be adjusted readily to the size of the head of the infant to be delivered. The grip structure 23—23 can rotate readily on the shanks 6 and 8, and thus the head has freedom to rotate within the pelvis, the head being permitted, automatically, to find the largest pelvic diameter. The device presents a structure wherein a full universal joint movement is possible. The rotary movement of the grips 23 may be regulated by exerting more or less transverse pressure upon them. The mounting of the grips 23 on the shanks 6 and 8 is such that by separating the shanks and rotating the grips, they can be taken off readily, thereby making it possible for the instrument to be taken apart and sterilized.

It will be noted, referring to Fig. 6, for instance, that if the trough-shaped grips 23 are rotated through an angle of 90 degrees, the grips will hold the forceps against opening. The physician, therefore, has within easy control, a means whereby the forceps may be locked in position, against spreading.

Generally stated, the construction of the device is such that it will consummate the objects set forth in the opening portion of this specification.

Having thus described the invention, what is claimed is:

1. Obstetrical forceps comprising cooperating levers each having a shank, grips having longitudinal grooves receiving the shanks, and means for mounting one grip on each shank for rotation, the cross section of the grips being such, considered relatively to the cross section of the shanks, that each grip may be rotated to a position in which it will be free of one shank, thereby permitting the shanks to be separated and the forceps to be opened, and be rotated to a position in which each grip engages both shanks transversely, thereby holding the shanks together and the forceps closed.

2. Obstetrical forceps comprising first and second levers and means for connecting them for opening and closing movement, the first lever having a fixed body provided with a shank; a second body provided with a shank, means for pivotally connecting the second lever to the second body for opening and closing movement with respect to the first lever, independently of the first-specified opening and closing movement, means associated with the second body for producing and governing said independent movement of the second lever, and a handle structure mounted to rotate on the shanks.

3. Obstetrical forceps constructed in accordance with claim 2, in combination with blades pivoted to the levers for movement in a direction transverse to that in which the levers open and close.

4. Obstetrical forceps constructed in accordance with claim 2, and wherein the shanks and the handle structure have parts which coact, when the handle structure is rotated, to lock the shanks together and prevent the first-specified opening and closing movement.

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