(No Model.)

2 Sheets—Sheet 1.

A. B. LYMAN.

OBSTETRICAL FORCEPS.

No. 441,427. Patented Nov. 25. 1890.

Fig 1.

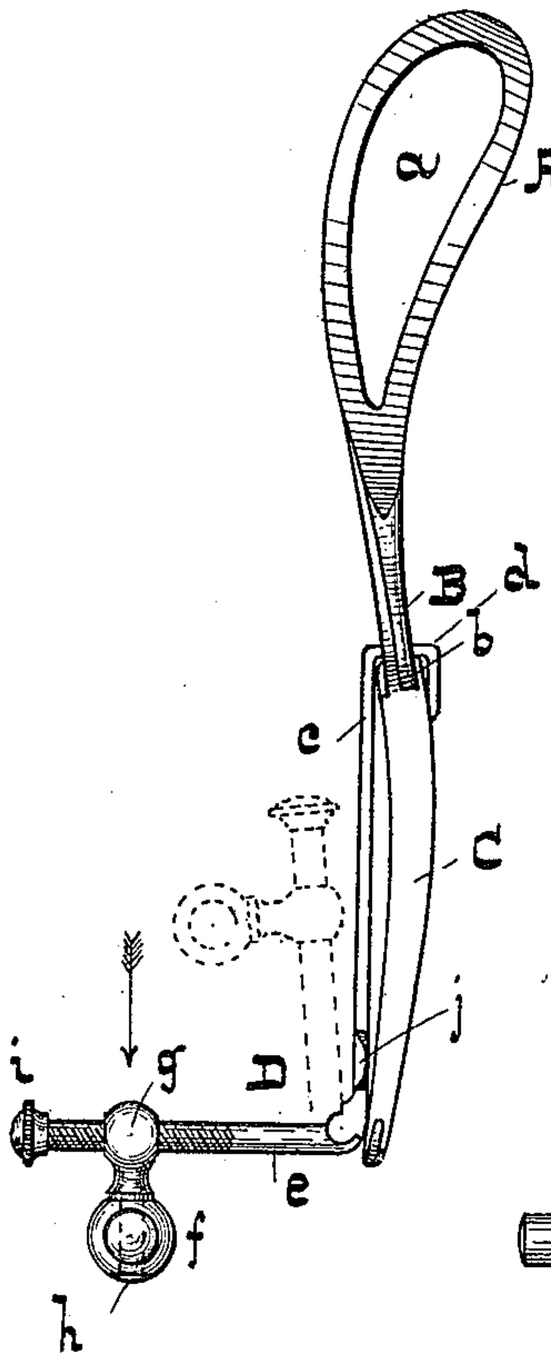


Fig 2.

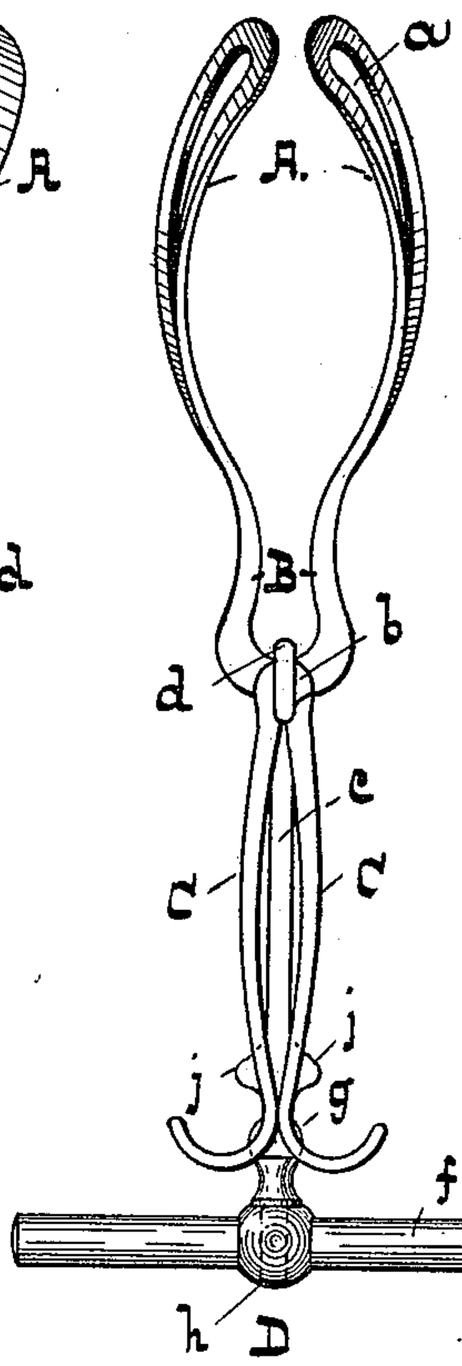
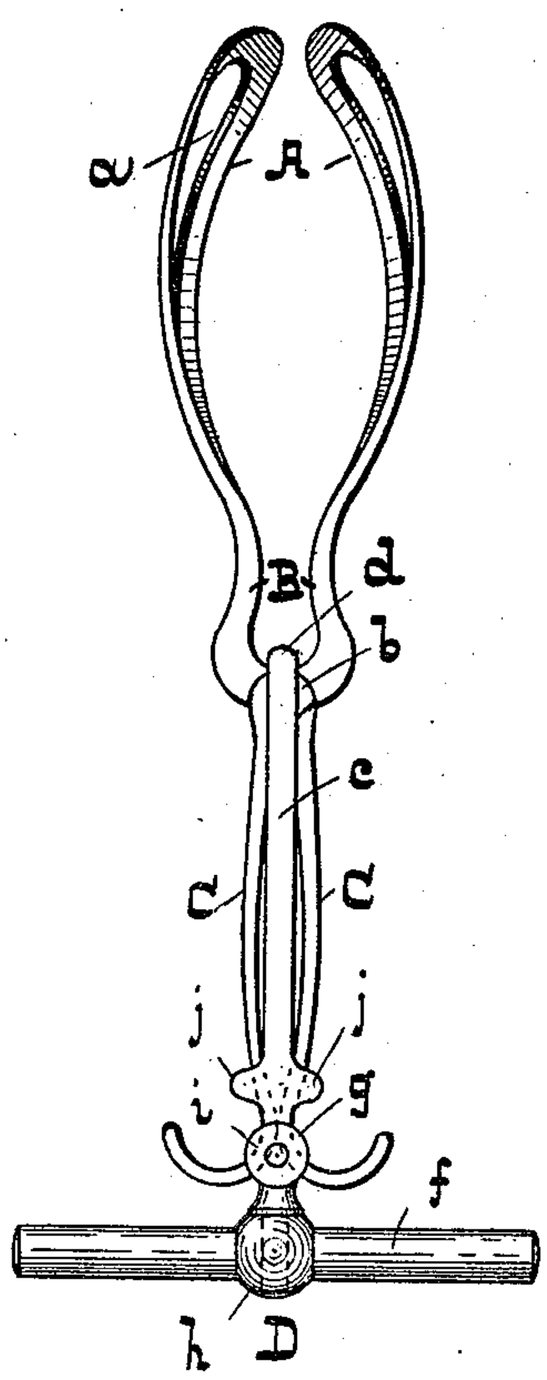


Fig 3.



-WITNESSES-

Dan'l Fisher

W. C. Gaines

-INVENTOR-

Albert B. Lyman,

by Gilbert K. T. Howard,

Atty.

(No Model.) 2 Sheets—Sheet 2.

A. B. LYMAN.

OBSTETRICAL FORCEPS.

No. 441,427. Patented Nov. 25, 1890.

Fig 4.

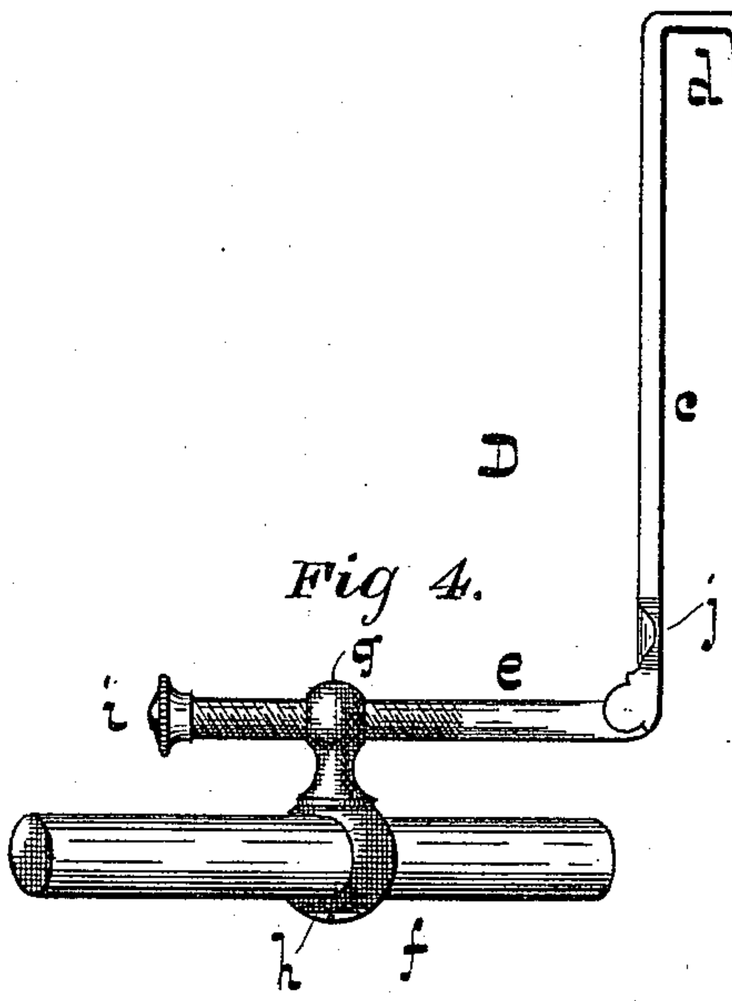


Fig 5.

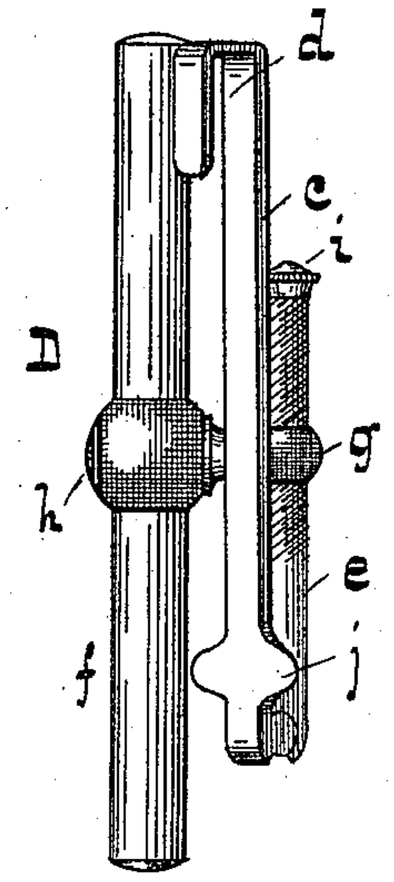
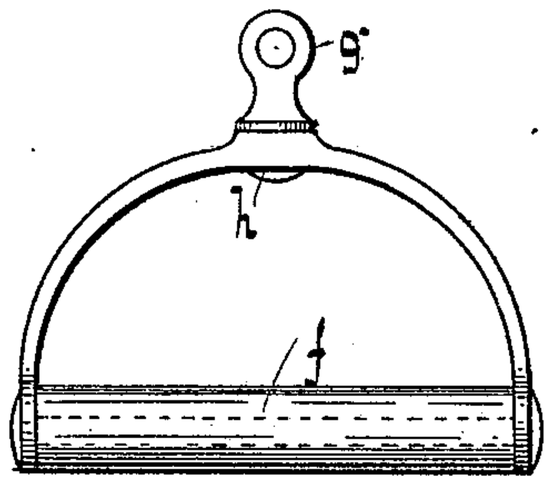


Fig 6.



-WITNESSES-

David Fisher
H. C. Landis

-INVENTOR-

Albert B. Lyman,
by Geo. W. Howard
atty.

UNITED STATES PATENT OFFICE.

ALBERT B. LYMAN, OF BALTIMORE, MARYLAND.

OBSTETRICAL FORCEPS.

SPECIFICATION forming part of Letters Patent No. 441,427, dated November 25, 1890.

Application filed June 28, 1890. Serial No. 357,050. (No model.)

To all whom it may concern:

Be it known that I, ALBERT B. LYMAN, of the city of Baltimore, State of Maryland, have invented certain Improvements in Tractors for Obstetric Forceps, of which the following is a specification.

This invention relates to an improved tractor adapted for application to a pair of obstetric forceps after the same are in position, whereby the blades of the forceps may be made to accurately follow the pelvic curve.

The said invention consists, first, in a tractor adapted to enter the the space between the shanks of the forceps and bear directly on the lock thereof and form a rigid continuation of the shanks in order that a certain curved movement is communicated thereto independently of that imparted to them by the secondary curve of the blades.

The said invention consists, secondly, in a peculiar construction of the tractor, whereby the curved path of the same may be changed at pleasure to conform to structural peculiarities in the patient independently of the curvature of the blades. In other words, the secondary curvature of the blades of standard forceps is made to conform to the general natural curvature of the pelvis; but in view of the normal deviation of the curve of the pelvis from the arc of a circle and individual structural peculiarities it is evident that it is practically impossible for the blades of the instrument to be constructed so as to suit all cases. The second part of the invention has therefore for its object the construction of a removable tractor which may be made to change the natural path of the forceps as effected by the secondary curvature of the blades.

In the further description of the said invention which follows reference is made to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is an exterior side view of a pair of locked forceps to which the improved tractor is applied. Fig. 2 is an edge view of Fig. 1, as seen from the concave portion of the blades. Fig. 3 is a view of the reverse of Fig. 2 or one looking from the convex portion of the blades. Fig. 4 is an enlarged view of the tractor extended, and Fig. 5 a similar view of the same closed. Fig. 6 illustrates a modification in the construction of the tractor-handle.

Referring to Figs. 1 to 5, inclusive, of the drawings, A represents the blades, B the shanks, and C the handles, of the forceps. The fenestra of the blades is denoted by *a*, and the lock by *b*.

D is the tractor, consisting of the shank *c*, hook *d*, stem *e*, and handle *f*. The stem is jointed to the shank in such manner that the two parts may be closed for convenience in transportation and opened so that they may be brought to a practically right angle with each other. The stem *e* is provided with a double or treble thread of coarse pitch, and on it is placed a spherical nut *g*, having a pin *h*, which passes loosely through the handle *f* to admit of the latter being turned thereon. The adjustability of the handle *f* on the stem *e* admits of a variation in the curved path of the forcep-blades effected by the use of the tractor, as described, for the reason that the farther the handle is moved out the shorter will be the radius of the curve described by the instrument in operation, and vice versa. A cap *i* on the end of the stem prevents accidental removal of the nut, and the shank *c* has two lugs *j*, which bear against the handles on the forceps as power is applied to the tractor. The width of the opening in the hook *d* is such as to prevent any unnecessary loose motion between the tractor and the forceps when force is applied to the handle of the tractor in the operation of the instrument.

It will be observed that power applied to the handle *f* of the tractor in the direction of the arrow in Fig. 1 tends to move the lower end of the handles of the forceps inward as well as downward; or, in other words, to move the blades B of the forceps in a curve approximating that of the pelvis, and this curvature may be varied by the adjustment of the nut *g* longitudinally of the stem *e*, so as to correct any departure in the secondary curvature of the blades of the forceps from the pelvic curve of the patient, and also to adapt the instrument to the anatomically normal or to accidental irregularity in the curve of the pelvis.

It will be seen that the tractor described can be instantly applied to any of the com-

monly-used forceps, as it does not depend for its connection thereto on studs, pins, or any other projections, which in different instruments would or might differ in size, character, or position, and, further, that power applied to the tractor has no tendency to alter the relative positions of the two members of the forceps, and therefore cannot spread or close their blades.

From the foregoing description of the invention it will be understood that by its use in connection with forceps having the secondary curve direct axial traction may be effected in obstetric operations where abnormal structure in the patient would prevent a satisfactory result with forceps which depend on the secondary curvature alone for the preservation of the axial position of the blades.

In Fig. 6 a spade-handle is shown attached to the spherical nut *g* instead of the cross-handle illustrated in the other figures.

I claim as my invention—

1. In combination with a pair of obstetric-forceps, a tractor which consists of a hooked shank adapted for connection with the lock of the forceps, having a threaded stem which is at practically a right angle with the shank, a nut on the threaded stem, and a handle attached to the said stem, substantially as and for the purpose specified.

2. A tractor for a pair of obstetric forceps, which consists of a hooked shank with a stem projecting from it at practically a right angle and a handle on the said stem, substantially as and for the purpose specified.

3. A tractor for a pair of obstetric forceps, which consists of a hooked shank having a jointed stem extending therefrom, with a handle dependent from the said stem, substantially as and for the purpose specified.

4. A tractor for a pair of obstetric forceps, which consists of a hooked shank having a jointed threaded stem projecting therefrom with a nut thereon and an adjustable handle dependent from the said nut, substantially as and for the purpose specified.

5. A tractor for a pair of obstetric forceps, which consists of a hooked shank with a stem projecting at practically a right angle therefrom, a handle connected to the said stem, and lugs on the said shank which as the tractor is drawn down bear against the handles of the forceps and communicate the inward movement of the tractor to the handles of the forceps, substantially as and for the purpose specified.

ALBERT B. LYMAN.

Witnesses:
WM. T. HOWARD,
JNO. T. MADDOX.