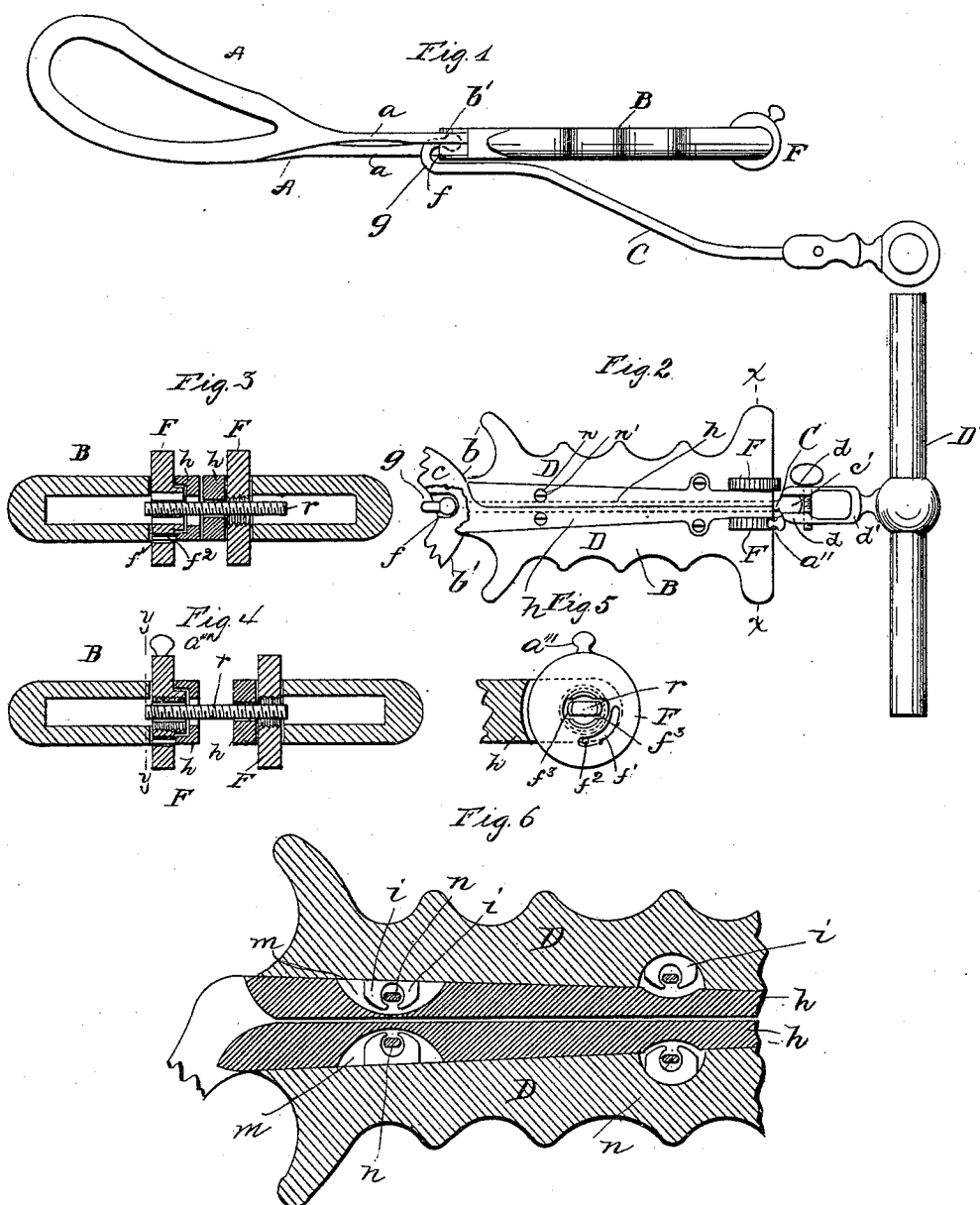


(No Model.)

J. J. E. MAHER.
OBSTETRICAL FORCEPS.

No. 466,173.

Patented Dec. 29, 1891.



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES J. E. MAHER, OF NEW YORK, N. Y.

OBSTETRICAL FORCEPS.

SPECIFICATION forming part of Letters Patent No. 466,173, dated December 29, 1891.

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To all whom it may concern:

Be it known that I, JAMES J. E. MAHER, of the city, county, and State of New York, have invented certain new and useful Improvements in Obstetrical Instruments, (Forceps;) and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of an obstetrical instrument made according to my said invention. Figs. 2 to 6, inclusive, are detailed views on a larger scale, showing certain parts of said instrument.

My said invention is designed to promote ease and effectiveness in the use and operation of the class of apparatus to which it relates, to enable it to be adjusted easily under certain conditions of use, and to facilitate the cleansing of the instrument with a view to the prevention of septic poisoning from impurities adhering to the instrument after use.

My said invention comprises certain novel combinations of parts whereby the desired objects are secured, as hereinafter described and claimed.

A A are the ordinary curved blades of an obstetrical instrument, and B B are the handles.

At *a* are the shanks by which the blades are connected to the handles. These shanks *a* are angled, as shown at *b'*, where they cross each other and each is provided with a fixed parallel lip *c*, so that by crossing and interlocking the shanks, the two parts—*i. e.*, the two blades with their respective shanks and handles—are pivotally connected. As this manner of connecting the said two parts of an obstetrical instrument is old and well known no special illustration thereof is required, further than to show the location of a socket *f*, the purpose of which is hereinafter fully explained. This socket is provided by recessing the inner surface of the two shanks at their intersection and at the side nearest the blades A A, as shown more fully in Fig. 2, but also shown in dotted outline in Fig. 1. This socket receives the rounded end of the hook *g*, provided upon the extremity of a traction-bar C, the outer end of which is loosely connected to a cross-handle D' by means of a ball *c'* at the end of said bar, which is held between the two

socket-pieces *d* of a clamp *d'*, carried by said handle D'. By this construction a ball-and-socket connection of the bar and handle is formed. Said traction-bar when applied with its hook in the said socket extends in a direction away from that of the blades A A.

When the instrument is duly applied in the manner well understood by obstetricians, the universal movement permitted to the traction-bar by reason of the free connection afforded by the hook fitted into the socket, as described, enables axial attraction to be applied to the entire instrument in such manner and direction as will most effectually insure the desired characteristic operation of the instrument.

The handles B B comprise, in addition to the handle-shanks *h*, (each of which is integral with its shank *a* and blade A,) the handle-pieces D D, whereby the most advantageous size and shape are afforded to the handles without the inconvenient weight which would result if the same size and shape were afforded to the handle portion of the apparatus integral with the blades, &c. These handle-pieces D D are preferably made of hard rubber, and are detachable from the handle-shanks. Each handle-piece is provided at its inner side with any desired number of pairs of inwardly-curved lugs *i*, which extend into cavities *m* in the adjacent surface of the handle-shank in such manner that a flat pin or key *n*, passed through holes in the sides of the handle-shanks, coincident with the space between the adjacent pair of lugs *i i* will hold against the hooked extremities of the latter and thereby firmly retain the handle-pieces upon the handle-shanks, as illustrated in Fig. 6. These flat pins or keys are free to be turned in their holes in the handle-shanks by any suitable instrument entering grooves *n'*, formed across the ends similar to the grooves in screw-heads. By turning the pin or key *n* to a position at right angles to that just described, so that its narrowed diameter is brought coincident with the space between the lugs *i i*, it is enabled to pass out between the latter. By thus turning the keys a quarter-turn the handle-pieces may be readily detached for cleansing the parts and as readily secured in place when the cleansing operation is completed. At the outer end of each

handle is a wheel or disk F, which plays in a suitable space provided for it in a plane parallel as to the length of the handles and which is most conveniently provided by recessing the outer end of the handle-piece, as shown at a'' , Fig. 2. Each of said disks has a central opening provided with an internal screw-thread, which operates as a nut upon a screw-threaded bar r , hereinafter described. Each handle-shank is slotted coincident with the axis of its wheel or disk, the said wheels or disks of course having their screw-threaded openings coincident in position. The flat bar r having its screw-threaded edges adapted to fit the threads of the nuts or disks F is passed through the slots in the handle-shanks and through the nuts or disks, so that by turning either of the latter the said thread of such disk screws the bar in or out, as the case may be, and thereby adjusts the distance apart of the handles, and consequently of the blades, the parts being firmly held and maintained in the position to which they are thus adjusted. One of the disks F (as the one at the right in Figs. 3 and 4) has a circular threaded opening, adapted to fit the threads of the flat bar at all times. The other disk F (shown in Fig. 5 and at the left in Figs. 3 and 4) has its central opening enlarged on opposite sides, as at f^3 , whereby when said disk is turned so as to bring it to the position shown in Fig. 5, the forceps may be readily opened, the bar r remaining attached to the right-hand handle. The left-hand nut or disk has a knob or handle a''' for quickly operating it and has also a segmental slot f'' , which

receives a pin f^2 , fixed to the shank h , the other object of which is to limit the motion of this disk to about one-quarter of a turn. At one extremity of motion the handles will be locked together and at the other extremity free to be opened.

What I claim as my invention is—

1. The combination of the traction-bar C, having the hook g with the blades A A, shanks a , and handles B B, provided with the socket f at the intersection of the said shanks, substantially as and for the purpose herein set forth.

2. The combination, with the blades A A and the shanks a , having the socket f , of the traction-bar C, having the hook g at one end to engage the said socket f , and a handle D', connected to its other end by means of a universal joint m , substantially as described.

3. The combination of the handle-pieces D, constructed with pairs of hooked lugs i with the handle-shanks M of the blades A A, constructed with recesses m , and the flat keys r , substantially as and for the purpose hereinbefore set forth.

4. The combination of the internally-threaded disks F, with the handle-shanks n , having the oblong slots, and the flat rack or spirally-threaded bar r , the whole arranged substantially as and for the purpose hereinbefore set forth.

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