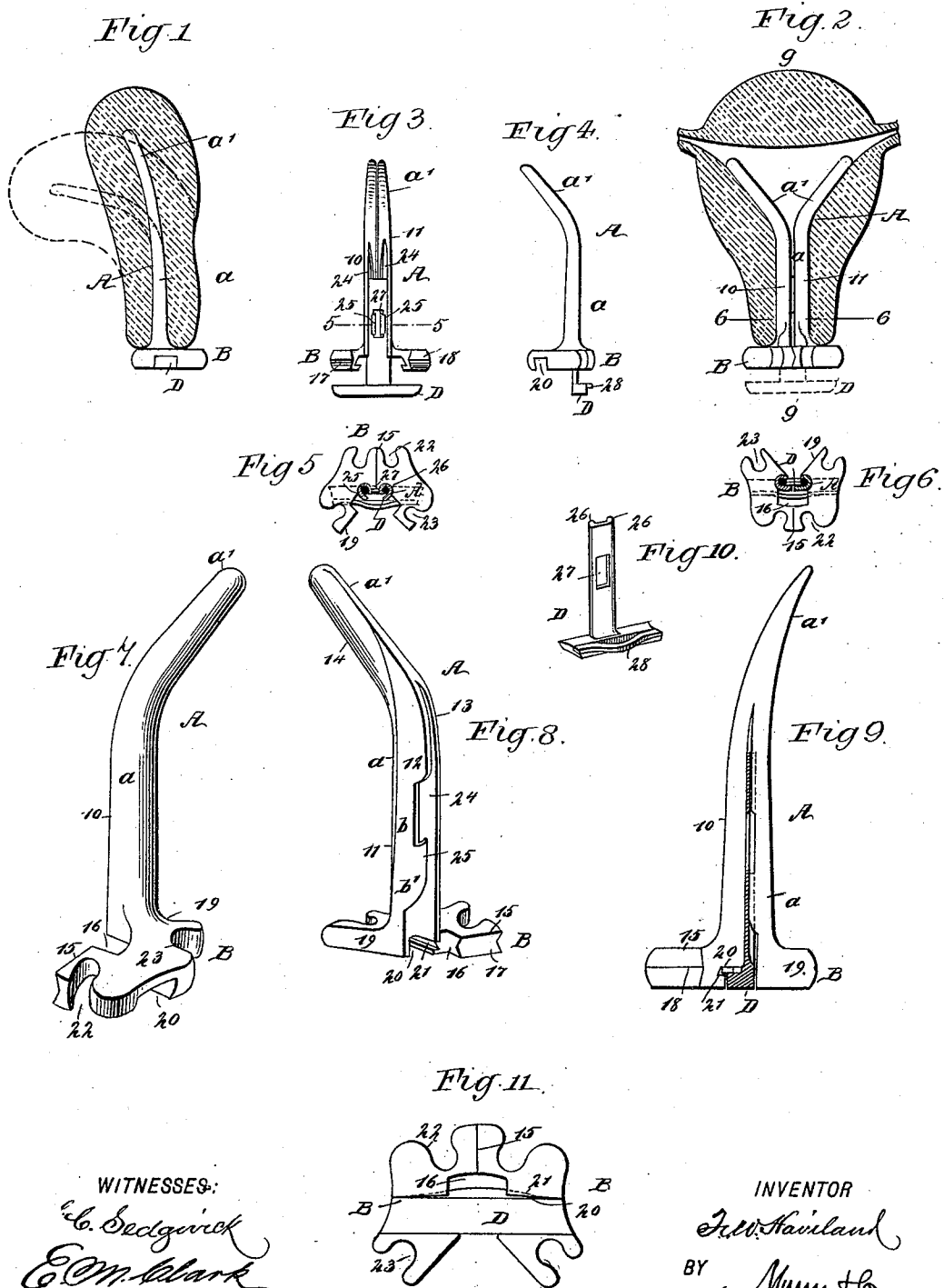


(No Model.)

F. W. HAVILAND.
DEVICE FOR RECTIFYING THE UTERUS.

No. 512,961.

Patented Jan. 16, 1894.



UNITED STATES PATENT OFFICE.

FRANK WOOD HAVILAND, OF NEW YORK, N. Y.

DEVICE FOR RECTIFYING THE UTERUS.

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To all whom it may concern:

Be it known that I, FRANK WOOD HAVILAND, of New York city, in the county and State of New York, have invented a new and Improved Device for Rectifying the Uterus, of which the following is a full, clear, and exact description.

My invention relates to devices for rectifying the uterus, and has for its object to provide an instrument through the medium of which a deflected uterus may be restored to its normal or proper position gradually, if the deflection is excessive, and held by adhesions, or immediately after the application of the instrument if the deflection is slight, or capable of being carried to completion, and to so construct the instrument that it will not only be fitted to the cervical canal but also to the angles of the uterine cavity, the adaptation of the instrument being so calculated that while it will have constant tendency to remedy the deflection of the uterus to a pre-determined extent it will have neither vertical or lateral movement. Therefore the instrument will produce the least possible friction and may be worn with safety and likewise with but slight inconvenience.

The instrument may be properly termed a rectifier, and it is so made that it may be folded when introduced into the uterus, thus enabling it to be readily passed up the cervical canal into the body cavity, and when fully entered the members or sections of the instrument may be expanded by manipulation at or near the external os or mouth of the uterus, and caused to engage with and closely conform to the shape of opposite sides of the cervical canal and the interior os, and also the opposing angles in the wall of the uterine cavity. Or, if the deflection is very great, the members or sections of the rectifier may be individually and independently introduced in and fitted to the interior of the uterus, and in either event, when the members or sections of the rectifier have been properly placed they may be locked in that position at the exterior of the uterus in a convenient and expeditious manner. The rectifier may be as readily removed from as it is placed in position, and in the same manner, and further, when the rectifier is with-

drawn from the uterus it may be straightened more or less before it is again introduced. The construction of the rectifier is also such that it is self-retaining, adjustable, and permits drainage from the uterus.

The invention consists in the novel construction and combination of the several parts as will be hereinafter fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a vertical section of a uterus viewed from the side, illustrating the rectifier in position within it, the uterus being shown in normal position in positive lines and in flexed position in dotted lines. Fig. 2 is a vertical section through a uterus viewed from the front, illustrating the rectifier within it and in front elevation. Fig. 3 is a front elevation of the rectifier when folded and ready for introduction into the uterus. Fig. 4 is an edge view of the rectifier when in the position shown in Fig. 3. Fig. 5 is a horizontal section, taken practically on the line 5—5 of Fig. 3. Fig. 6 is a similar section through the rectifier when it is in expanded and locked position, the section being taken essentially on the line 6—6 of Fig. 2. Fig. 7 is a perspective view of a body section or member of the rectifier viewed from the front; and Fig. 8 is a similar view of a body section or member viewed from the rear. Fig. 9 is a central vertical section through the rectifier, its body sections being locked in expanded position, and the section is taken practically on the line 9—9 of Fig. 2. Fig. 10 is a detail perspective view of the key; and Fig. 11 is a bottom plan view of the complete instrument.

One of the main features of the present invention is to provide an instrument for rectifying a deflection of the uterus, which will be adjustable and capable of ready manipulation, and one that will fit close to opposite sides of the cervical canal from the external to the internal os, and likewise fit close at opposite points to the inclined side walls or angles of the uterine cavity, and further to provide that portion of the instrument adapted to lie within the body of the uterus with

an inclination corresponding to the proper or desired inclination of the uterine body, or approximately so, or the inclination of the upper portion of the instrument may be practically the same as the angle of deflection in a flexed uterus to be treated, or the angle of inclination in the instrument may be materially less than the angle of deflection.

In order to properly construct such an instrument it is apparent the length of the cervical canal should be known from the external to the internal os, and also the angles of the uterine cavity. Furthermore, the direction and extent of the deflection in the flexed uterus should likewise be ascertained. This information may be accurately obtained by employing two instruments, for each of which I have made application for Letters Patent. One of the instruments is termed an "endograph," Serial No. 470,398 and the other a "flexometer," Serial No. 470,397. The endograph supplies a drawing or chart, representing the exact shape in a given direction of the interior of the uterus to which it is applied, and the flexometer produces a model that accurately portrays the deflection of both the body and the neck of the uterus.

A rectifying instrument that has been successfully employed for restoring the uterus to its normal shape is shown in the drawings, and comprises in its entirety a body A, a base B and a key D, and the material used in the construction of the instrument may be metal, hard rubber, or their equivalents, but hard rubber is preferred. The body and base are divided about centrally and longitudinally into two sections 10 and 11, a base section constituting an integral portion of each body section. Each body section may be said to comprise a shank *a* and head *a'*; the shank is practically straight, while the head is bent outward and upward from the shank at an angle more or less obtuse. It may be further remarked with reference to the detail construction of the shank and head, that the rear face 12, is flattened and likewise the inner edge 13, as shown in Fig. 8, while the front and outer side surfaces are cylindrical. See Fig. 7. The head tapers somewhat in direction of its upper end; its inner lower face 14, is somewhat rounded off, while its front face may be given any desired cross sectional shape; ordinarily, however, it is slightly convexed. It may be further remarked that the shank is usually made widest at its junction with the head, and I desire it to be understood that in detail the shape of the head and shank sections may be varied as occasion may demand. Likewise the construction of the base of each shank section may be changed from that shown in the drawings; ordinarily however the illustrated construction may be retained. In this event a base section stands practically at right angles to a shank section of the body, being connected with its front and outer side surfaces. The inner forward edge 15 of each base section, is straight, as

shown in Figs. 7 and 8, and is at right angles to the inner edge of the shank section with which it is connected; and in this portion of the base a recess 16, is produced close to the lower front surface of the shank, as shown in Figs. 7 and 8, while a slide-way 17, preferably of angular shape is formed in the front portion of the inner edge of one base section, leading preferably to the recess 16, the other base section being provided with a correspondingly shaped and located projection 18, as shown in Figs. 2 and 8 and in Fig. 9, whereby an interlocking connection is formed between the two base sections when the instrument is in rectifying position. The inner edge 19 of each base section has an outward and rearward inclination, whereby when the sections of the body are in rectifying position quite a space intervenes the opposing edges 19, as shown in Fig. 11, and when the sections are brought to the folded position shown in Fig. 3, the two inclined edges 19 of the base are brought together. A channel 20, is produced transversely in the bottom of each base section, being correspondingly located in each, as shown in Fig. 11; and on one side wall of each channel is provided with a groove 21. See Figs. 3, 8 and 9. The construction of the base is completed by forming a recess or aperture near each end that is near the edges 15 and 19, which recesses are designated as 22 and 23, and are adapted to receive the jaws of a forceps utilized in placing the instrument. Each base channel 20, communicates with a longitudinal channel 24, produced in the flattened inner edge 13 of each shank section. The inner walls of the channels 24, are curved in direction of the opposing walls, as shown in Fig. 8, and two cuts or recesses *b* and *b'* are made in the said inner walls, one above and the other below a given point, thereby forming an inwardly-extending lug 25, shown in Figs. 3 and 8.

The key D, heretofore alluded to, is adapted to serve the dual purpose of a hinge for the body sections and a lock. The key is made practically T-shaped, as shown in Fig. 10. Its shank is provided with a rib 26 at each side edge upon one face, the ribs being preferably made rounding, and the shank is further provided with a slot 27, located between the ribs and extending from one rib to the other. The head section of the key carries upon one of its edges a spring 28, adapted to enter the grooves 21 in the walls of the base channels 20, as shown in Figs. 9 and 11, since the head is shaped to fit into said channels.

When constructing the rectifier the shank of each body section is given a length corresponding to the distance between the internal and the external os, which is the length of the cervical canal, and the heads of the body sections are given a side inclination corresponding to the angles of the uterine cavity. Next the heads of the sections are given an inclination corresponding in direction and

somewhat in degree to the deflection of the body of the uterus, or an inclination more or less closely approximating a normal flexion. Thus when the instrument is placed in the uterus it will fit the cervical canal and uterine cavity so perfectly that comparatively little irritation will result from its presence, and practically no discomfort will be experienced by the patient. At the same time the upper or front faces of the heads of the instrument will bear up the body of the uterus and hold it at an inclination corresponding to the rearward or corrective flexion of the heads, and as the instrument may be withdrawn from time to time and the rearward flexion of the heads be corrected to approach more closely the proper degree of deflection of the uterus, the uterus may be gradually and permanently restored to its normal position. When the deflection of the uterus is only slightly out of normal the heads of the instrument may be given a normal corrective or rearward inclination at once. By reason of the walls of the uterine cavity being supported by the instrument at each side of the center, tension upon the uterus is distributed and the best results may be obtained. I desire it to be understood that the heads of the instrument are given two inclinations, that is, in direction of the angles of the uterine cavity, which is in a lateral direction, and also in direction of the deflection of the uterus, which may be either in a forward or a rearward direction.

When the position of the uterus will admit of the instrument being introduced folded, that is, with the body sections close together and parallel, as shown in Figs. 3 and 4, the parts are assembled as follows: The two straight edges 15 of the base sections are placed in contact, whereupon the shanks of the body sections will be parallel, and their heads will be inclined in opposite directions. The shank of the key is next introduced between the shanks of the body sections; the ribs on the key being entered into the body channels 24 they will now serve to connect the two body sections. The shank of the key, however, is only made to enter the body channels a sufficient distance to bring its opening 27 opposite the channel lugs 24. Now by inserting the jaws of a pair of forceps in the recess 23 near the inclined edge of the base section, said surface may be brought together and the body sections will fold one toward the other until their inner faces engage, and the shank and head portions of the body sections will be in close engagement and in parallel positions. The pivot or hinge upon which the body sections turn is formed by the lugs 25 entering the openings in the key and turning upon the key ribs, as illustrated in Fig. 3. After the instrument has been introduced into the uterus in its folded position until the base is practically in engagement with the mouth or external os, the forceps are removed and entered into the now

outer set of base recesses 22, whereupon by drawing the backward separated walls together, the body sections will be again turned upon their pivot and restored to their first position, and will appear as shown in Fig. 2, and each body section will be in engagement with an opposite side wall, the length of the cervical canal, and likewise practically the length of the angles in the uterine cavity. The body sections are then locked in this position by pressing inward the key until its spring engages with the keeper in the base. Before removing the instrument it may be folded again, and removed in that position, or the key may be entirely disengaged from the body sections and each section turned and moved separately. The several parts of the instrument in extreme cases, or when the uterus is very sensitive, may be separately introduced, one body section being placed in position after the other and locked by the addition of the key.

When the instrument is inserted in the uterus, and expanded, a slot is formed between the body sections through which there is always proper drainage.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An intra-uterine rectifier having a shank or stem approximately the length of the cervix and having a forked head the two arms of which are inclined forwardly or backwardly to correspond with the forward or backward inclination of the uterus and laterally to conform to and fit the diverging lateral walls of the cavity of the body of the uterus, substantially as set forth.

2. An intra-uterine rectifier comprising a longitudinally divided shank having a forked head, one arm of which is carried by each shank section and said arms being inclined forwardly to correspond to the inclination of the uterus and also inclined laterally to conform to and fit the diverging end walls of the uterine cavity, and means for locking the shank sections in proper position, said sections being adapted to be separately or unitedly inserted in the uterus, substantially as set forth.

3. The herein described intra-uterine rectifier comprising parallel shank sections provided with the head sections curved or inclined to fit the cavity of the body of the uterus and a draining channel formed between the two shank sections and open at its outer side to permit the contraction of the cervical walls to expel whatever may enter said channel, substantially as set forth.

4. An intra-uterine rectifier comprising the two longitudinal sections, and an intermediate longitudinally removable pintle forming key separably connecting said sections, substantially as set forth.

5. An intra-uterine rectifier comprising the two longitudinal sections having recesses or slots in their bases and a longitudinally re-

movable pintle forming key having a cross piece entering said slots or recesses to lock the sections against rotation, substantially as set forth.

5 6. An intra-uterine rectifier comprising the two longitudinal sections provided with recessed or slotted bases and a longitudinally removable pintle forming key separably connecting said sections and having a cross piece
10 entering said recesses to lock them against rotation and a fastening device for locking the cross piece in the said recesses or slots, substantially as set forth.

7. An intra-uterine rectifier comprising the
15 two longitudinal sections having projections on their adjacent faces, a longitudinally removable pintle forming key having parallel ribs extending behind the said projection to lock the sections and on which they hinge;
20 said key having an aperture between the ribs adapted to register with said projections when

the key is partially withdrawn to permit the said sections to swing on the key and at the same time lock the key against longitudinal displacement, substantially as set forth. 25

8. An intra-uterine rectifier comprising the two longitudinal sections provided with transversely slotted bases cut away on their abutting edges to permit the two sections to turn said bases also having recesses on their outer
30 edges to receive the forceps points and a longitudinally removable pintle forming key separably connecting said two sections and provided with a transverse cross piece to enter said slots or recesses and lying within the
35 margins of said base pieces in all of their adjustments, substantially as set forth.

FRANK WOOD HAVILAND.

Witnesses:

EDWARD M. CLARK,
F. W. HANAFORD.