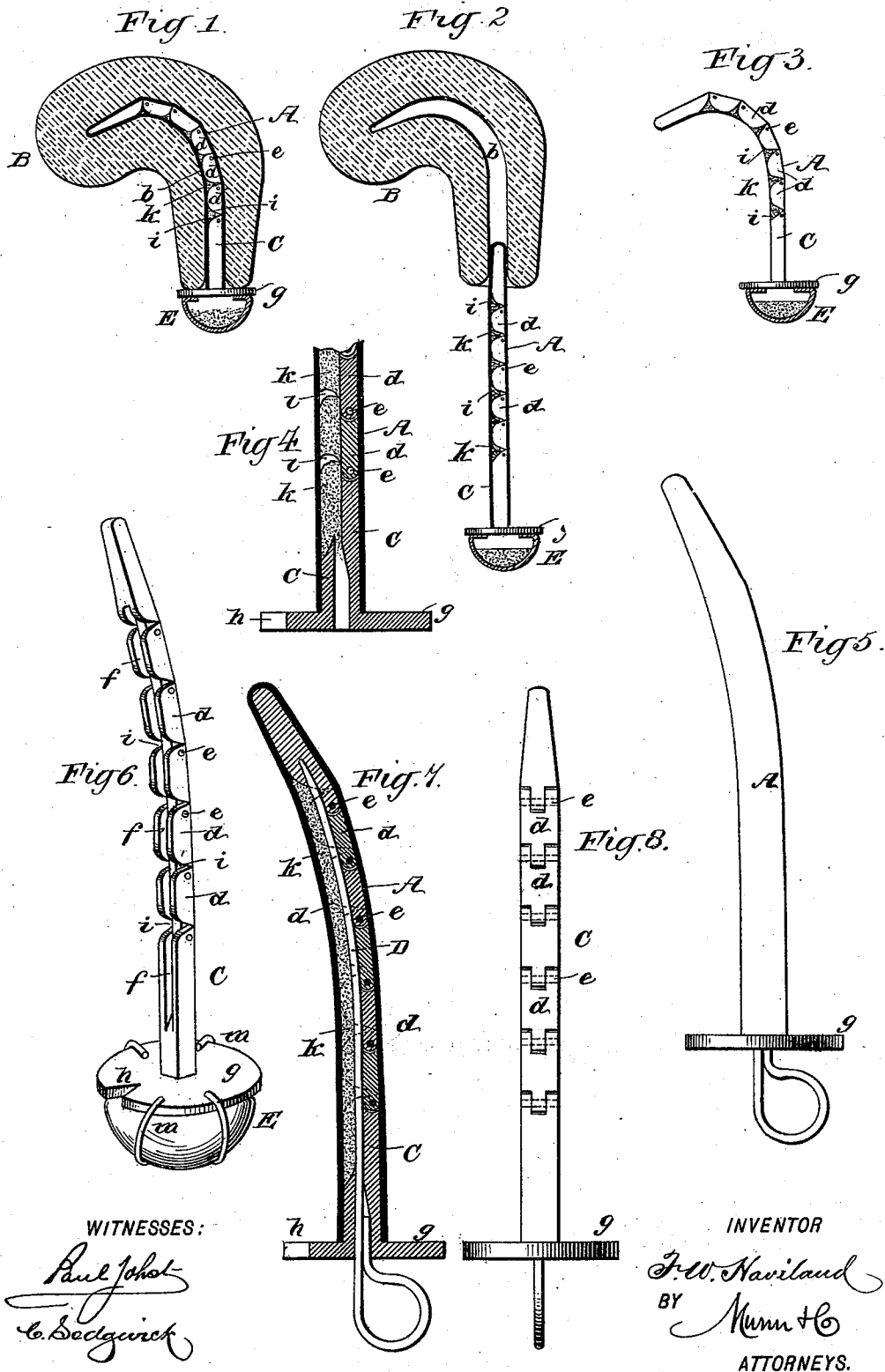


(No Model.)

F. W. HAVILAND.
APPLIANCE FOR TREATMENT OF THE UTERUS.

No. 512,024.

Patented Jan. 2, 1894.



UNITED STATES PATENT OFFICE.

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

APPLIANCE FOR TREATMENT OF THE UTERUS.

SPECIFICATION forming part of Letters Patent No. 512,024, dated January 2, 1894.

Application filed April 15, 1893. Serial No. 470,397. (No model.)

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
5 Improved Appliance for the Treatment of the Uterus, of which the following is a full, clear, and exact description.

My invention relates to a device or appliance for the treatment of the uterus, and it
10 has for its object to provide a means whereby the degree of its deflection may be accurately determined; therefore I denominate the instrument a flexometer.

A further object of the invention is to provide an instrument whereby a cast or model
15 of the cervical canal and uterine cavity may be obtained, which will faithfully portray the extent to which the body of the uterus has flexed, said model being especially adapted
20 as a guide for shaping a device or devices to be applied to the uterus with the intent of restoring it to a normal or healthy position.

Another object of the invention is to so construct the instrument that in addition to
25 determining the deflection of the body of the uterus it will at the same time indicate the position of the neck.

The invention consists in the novel construction and combination of the several parts,
30 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 letters of reference indicate
35 corresponding parts in all the figures.

Figure 1 is a vertical section of a flexed uterus, the section being taken through both the anterior and posterior walls, illustrating the application of the flexometer thereto.
40 Fig. 2 is a similar view of the uterus, illustrating the position of the instrument when first introduced into, or when it is just leaving the uterus. Fig. 3 is a side elevation of the instrument removed from the uterus and
45 restored to the same deflection as the latter. Fig. 4 is an enlarged sectional view of the lower portion of the flexometer, illustrating its appearance when removed from the uterus. Fig. 5 is an exterior view of the flexometer,
50 just before insertion into or removal from the uterus, also illustrating the applica-

tion thereto of a stilet. Fig. 6 is a perspective view of the body of the instrument. Fig. 7 is a longitudinal section through the instrument, showing the application of the
55 stilet; and Fig. 8 is a front elevation of the body of the instrument.

When the uterus becomes flexed from a normal position and inserted instruments are employed to restore it to its proper position,
60 it is very necessary that the instrument should so conform to the contour of the uterine cavity as not to unduly irritate its walls and yet have a bearing upon the walls at the side portions of the cavity and in a direction the
65 reverse of the deflection.

In order to construct such an instrument, which is the subject matter of another application Serial No. 470,396, the length of the
70 cervical canal must be known, and likewise the angle of the walls of the body cavity from the internal os upward, and next the degree of deflection must likewise be ascertained as accurately as possible.

The means for determining the angles of
75 the body cavity and the length of the canal form the subject matter of another application, known as an improvement in endographs, Serial No. 470,398, and the means for
80 ascertaining the deflection are the subject matter of the present application.

The flexometer comprises a flexible or articulated body section capable of maintaining in connection with it a plastic material, a
85 sheath of flexible or pliable material adapted to temporarily envelop the body, and a stilet or equivalent stiffening device adapted under certain circumstances to be employed in connection with the body and sheath.

While the body of the instrument may be
90 made of any pliable material, either in sections or a continuous length, one face, that in direction of which the deflection is to occur, is roughened or indented, or treated in
95 such manner as will enable the said face to retain a plastic substance to a greater or less extent.

An articulated body or stem C, substantially similar to that shown in the drawings, has been advantageously employed, and such
100 a construction is therefore preferred. Such a body is made up of a series of jointed, tongued

and slotted members *d*, having pivotal connection as at *e*, and the entire body is flexed in a given direction, the deflection corresponding practically to that of the uterine cavity when the uterus is in proper position. Therefore, the body, when straightened out, has one concave and an opposing convex face; but I desire it to be understood that I do not confine myself to any particular degree of deflection.

The jointed members of the articulated body C, terminates at what may be termed the head in a tapering section, provided with an aperture in its lower end, as shown in Fig.

7. Another aperture is made in the bottom section of the body, extending through its lower end, and each intermediate section, including the upper portion of the lower section, is provided with a longitudinal groove *f*, the grooves and apertures which are in longitudinal alignment being in the concave face of the body. The bottom section has a flange formed integral with it, or attached thereto, and the flange is provided with a notch *h*, opposite the concave face of the body, to conveniently locate said face when the instrument is applied. The grooves and apertures in the body section are for the reception of a stilet D, or like article, or a wire rod of any description, intended to temporarily stiffen the body when the deflection of the uterus is so great as to offer more resistance to the introduction of the body than the body without the stay can overcome; but when the stilet is employed, after the instrument has been introduced into the uterine cavity the stilet is withdrawn and the instrument will then flex itself to the curvature or deflections of the said cavity, as shown in Fig. 1.

The body is enveloped in a sheath A of rubber, or other soft and flexible material, said sheath being drawn over the head of the body to an engagement with its base flange. The length of the body and sheath is such that when the instrument is introduced in the uterus the body will extend the length of the cervical canal *b*, and the full length of the cavity of the body B of the uterus, as is also shown in Fig. 1, or sufficiently into the cavity of the body to pass the point of flexion. The front or flexing faces of the body sections are separated from each other, or are constructed to form cavities *i* between them, as is best shown in Fig. 6.

The instrument is operated in the following manner: The body C, is first dipped in plaster *k*, or a like material while the plaster is in a fluid or plastic state, until the cavities *i* and the grooves *f* are filled; the sheath is then drawn over the body and plaster and the instrument is ready to be placed in the uterus. The instrument is pushed gently up the cervical canal and into the uterine cavity until the flange comes in contact with the cervix, and the inserted portion of the instrument will automatically conform itself to the shape of the canal and cavity, as shown in

Fig. 1. When the instrument is withdrawn from the uterus, which is after the plaster has set, the flexed body must straighten as it passes out through the cervical canal, and in so doing the plaster is fractured, as shown in Fig. 4: After the instrument has been entirely withdrawn from the uterus the sheath is removed, and the plaster, which remains upon the body, filling the grooves and cavities at joints, and which is now fractured at the joints, will permit the body to be flexed precisely as it was flexed while the plaster set hard while within the cavity of the uterus, whereupon a perfect model is obtained of the deflection of the uterus, as shown in Fig. 3, which model may be utilized for any desired purpose. A vessel E preferably of a transparent material, may be secured by clips otherwise to the flange of the body of the instrument, adapted to contain liquid plaster. When the instrument is removed from the uterus the level of the plaster will indicate any deviation from the natural position of the neck of the uterus, and the plaster in the vessel will also indicate in a measure whether the plaster upon the body is set, as the plaster upon the body is liable to set before that in the vessel.

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

1. A flexometer consisting in an elongated or stem-like flexible or pliable mold channeled or recessed to contain a plastic material and adapted to readily conform to the curvature of the cavity into which it is inserted and to retain such curvature until the plastic material sets or hardens substantially as set forth.

2. A device for determining the deflection of the uterus, the same consisting of a flexible or pliable stem having a surface prepared for the reception of a fracturable compound or material, and a pliable sheath enveloping the stem, for the purpose set forth.

3. A flexometer having a stem formed of articulated channeled or grooved sections provided with cut away or rounded ends to permit the stem to readily curve, substantially as set forth.

4. A device for determining the deflection of the uterus, comprising an articulated stem adapted to receive a coating of a breakable material or composition, and a pliable sheath enveloping the stem, substantially as shown and described.

5. A device for determining the deflection of the uterus, comprising a flexible or pliable stem having a surface prepared to receive a plastic compound, a pliable removable sheath enveloping the stem, and a removable stiffening device for said stem, substantially as described.

6. A device for determining the treatment of the uterus, consisting of a stem adapted to be introduced into the cervical canal, and a vessel connected with the stem, to be located adjacent to the exterior os, said vessel to con-

tain a liquid plastic compound, whereby the plane of the compound will indicate the position of the neck of the uterus, as set forth.

5 7. A flexometer having a stem formed of articulated channeled or grooved sections cut away or rounded at their adjacent ends to permit the stem to readily curve, the lower or base section having a longitudinal aperture and the inner or outer section having a socket,
10 and a stiffener adapted to extend through the said aperture, and base of the channels or grooves into the said socket, substantially as set forth.

8. A device for determining the deflection of the uterus, consisting of an articulated stem 15 provided with cavities between its sections in one of its faces, adapted to receive a plastic compound, a pliable sheath enveloping the stem, and a vessel connected with the lower end of the stem, adapted to contain a liquid 20 plastic compound, substantially as and for the purpose set forth.

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Witnesses:

EDWD. M. CLARK.

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