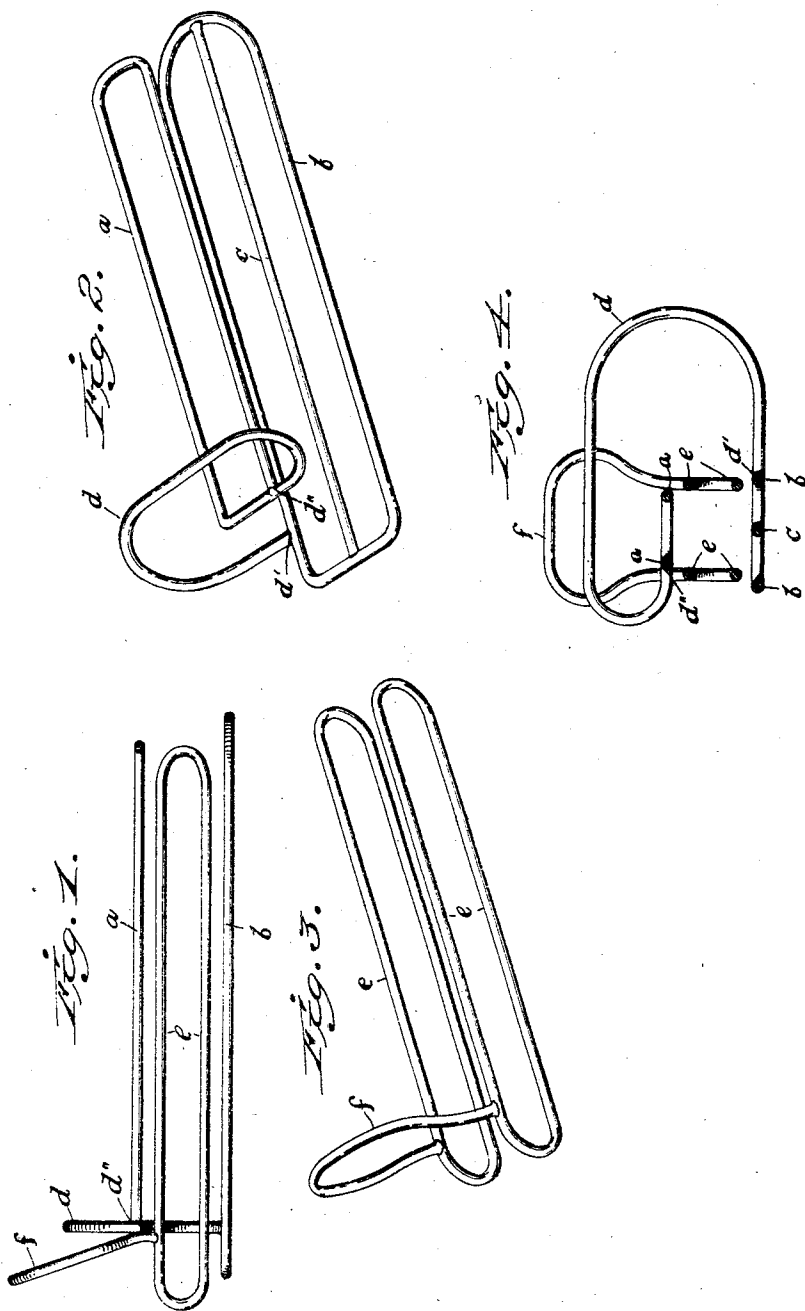


No. 779,885.

PATENTED JAN. 10, 1905.

C. F. SPANGLER.
SPECULUM.

APPLICATION FILED SEPT. 1, 1904.



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UNITED STATES PATENT OFFICE.

CHARLES FREDERIC SPANGLER, OF KANE, PENNSYLVANIA.

SPECULUM.

SPECIFICATION forming part of Letters Patent No. 779,885, dated January 10, 1905.

Application filed September 1, 1904. Serial No. 223,017.

To all whom it may concern:

Be it known that I, CHARLES FREDERIC SPANGLER, a citizen of the United States of America, residing at Kane, in the county of McKean and State of Pennsylvania, have invented certain new and useful Improvements in Speculums, of which the following is a full, clear, and exact specification.

The object of this invention is to provide a quad-valve speculum by means of which a general exposure of the vaginal surface and cervix uteri to facilitate diagnosis and medical and surgical treatment and which shall be self-retaining, capable of ready sterilization, and easily introduced and withdrawn, as more fully hereinafter set forth.

To the accomplishment of these objects and such others as may hereinafter appear the invention consists of the parts and combination of parts hereinafter described, and particularly pointed out in the appended claims, reference being had to the accompanying drawings, forming a part of this specification, in which the same reference characters designate like parts throughout the several views, and in which—

Figure 1 is a side elevation of the device with the parts in their proper relative positions as they appear when in use. Fig. 2 is a perspective view of the main part or speculum; Fig. 3, a perspective view of the supplemental part or retractor, and Fig. 4 a transverse section through Fig. 1.

The device is so constructed that it is capable of being made entirely of steel or other wire bent into shape and properly welded at the joints, the bends and joints being smooth and rounded to avoid sharp corners and projections. It consists of two members separate from each other, but especially constructed to coöperate with each other to produce a speculum of the quad-valve type, each of the members being capable of use separately, however, as a bivalve speculum and one of them in addition as an efficient retractor.

The main member consists of two endless loops *a* and *b* of the proper length, the loop *a* constituting the anterior blade and being the narrower and shorter of the two and the loop *b* constituting the posterior blade, this latter

loop being braced longitudinally by a central rod *c*. These loops or blades are connected together at their outer ends by a spring *d*, so constructed as to normally hold them in parallelism when closed as well as when separated. The spring is connected at one end *d'* to one of the side bars of the longer blade *b* at a distance from its outer end, from which point of connection it extends outwardly at an approximately right angle to the blade, then curves upwardly and inwardly across and beyond the outer end of blade *a*, and then downwardly to its point of connection *d'*, which is at the extreme outer end of the blade *a* at the opposite side from connection *d'*. This main part is introduced into the vagina first by compressing the distal ends together, the narrower blade being above or in front and the longer and wider blade pressing backwardly against the rectum. The blades are then released and the spring causes them to separate. It will be observed that the loop-shaped spring permits the fingers to readily grasp the outer or rear ends of the blades and that when the device is in position there will be no obstructing projecting parts.

The supplemental member consists of two endless narrow wire loops or blades *e*, provided with rounded ends and connected together near their outer ends by a lateral spring-wire bow *f*, the ends of the bow being connected to the side edges of the blades. After the main part has been introduced, this supplemental member is inserted to cause a lateral expansion of the vaginal walls, the blades being inserted between the expanded blades of the main member, as shown in Figs. 1 and 2. The blades of this supplemental member are normally parallel, and the actuating-spring is so located that when the device is in position it will lie near to or against the spring *d* of the main member and be out of the way, as is shown in Fig. 1. As is obvious, this supplemental member may be used as a retractor for my speculum or any other speculum device.

It will be observed that it is the special object of this device to afford sufficient and satisfactory exposure to view of the organs without the aid of an assistant, especially in stout

persons, where by reason of the relaxed superfluous vaginal tissues the tissues would close in between the blades of the speculum when expanded if they were solid. This is accomplished by an open-bladed wire speculum constructed in the manner shown and described, which permits a general inspection of the entire vulvar, vaginal, and cervix-uterine surface, as is obvious.

10 It will be apparent to those skilled in the art that various mechanical embodiments of the invention are possible, and I therefore do not wish to be limited to the exact construction and arrangement shown and described.

15 What I claim is—

1. A quad-valve speculum, consisting of a main member, comprising a pair of open wire blades connected at their outer ends by an actuating-spring, and a supplemental member
20 comprising a pair of open wire blades connected at their outer ends by a spring and being sufficiently narrow to pass between the blades of the main member.

2. A quad-valve speculum, consisting of a
25 main member, comprising a pair of blades, connected at their outer ends by a lateral spring

extending from one side edge of one of the blades, at a distance from its outer end, up over the other blade and connected to the opposite edge of the other blade, and a retractor or supplemental member whose blades are adapted to pass between the blades of the main member.

3. A wire speculum, consisting of a pair of open wire loops or blades and a laterally-extending spring connecting their outer ends.

4. A speculum, consisting of a pair of open blades, and a laterally-extending spring connecting their outer ends, said spring being connected to the edge of the lower blade at a distance from its end and thence extended up over and across the outer end of the other blade and connected to the opposite edge of the latter.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 30th day of August, 1904.

CHARLES FREDERIC SPANGLER.

Witnesses:

WM. A. BAKER, Jr.,

C. V. GILLIS.