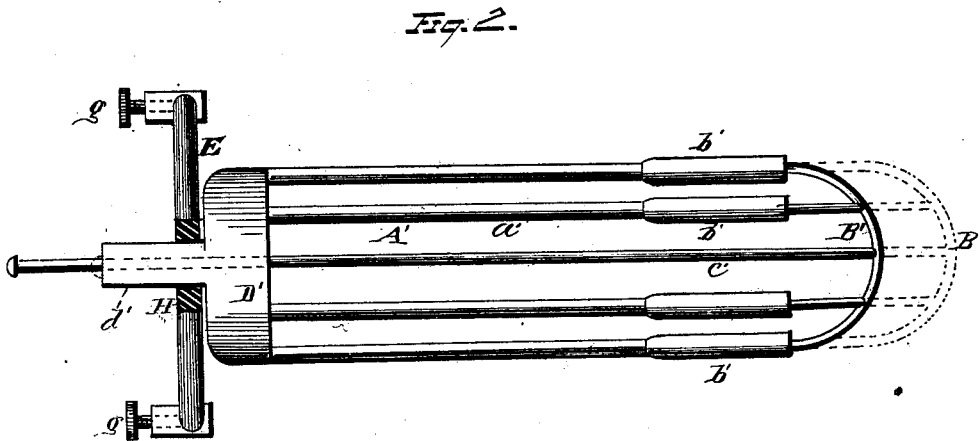
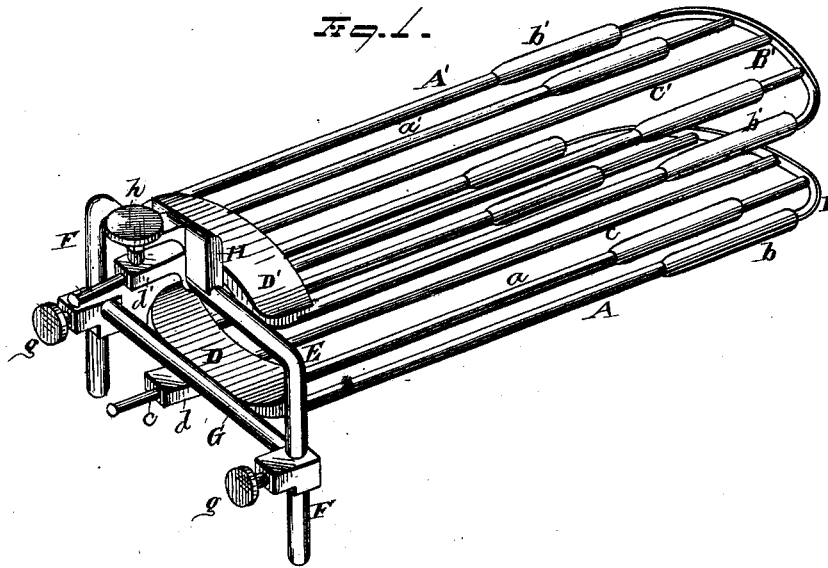


A. BRADFORD.
Speculums.

No. 206,162.

Patented July 23, 1878.



WITNESSES
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IMPROVEMENT IN SPECULUMS.

Specification forming part of Letters Patent No. **206,162**, dated July 23, 1878; application filed May 24, 1878.

To all whom it may concern:

Be it known that I, ADDISON BRADFORD, of Amsterdam, in the county of Montgomery and State of New York, have invented certain new and useful Improvements in Speculums; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to that class of surgical instruments known as speculums.

It consists in improved mechanism for adjusting the length of the blades, for varying their angular relation toward each other, and for moving one blade to or from the other at the outer extremities of the same while the angular relation of their bodies is undisturbed.

In the drawings, Figure 1 is a view, in perspective, of a speculum made according to my invention. Fig. 2 is a side view of the same. The blades A and A' are, respectively, made with the rods *a* and *a'*, whose inner extremities are provided with sleeves *b* and *b'*, in which the rods of the extensions B and B' have telescopic movement. Adjusting-rods *c* and *c'*, which engage with said extensions, extend rearward, and pass through openings formed in the rod-connecting bars D and D' and their stems *d* and *d'*. These extensions allow the length of either or both blades of the speculum to be adjusted, according to the different needs of the practice; and by means of said adjusting-rods such change in the length of the blades can be made while the instrument is introduced in use.

The stem *d* of the rod-connecting bar D is rigidly secured to the cross-rod G, which latter has perforated end bodies, which have sliding movement upon the arms F of the supporting-bar E. Clamping-screws *g* fasten this sliding cross-rod to the said arms when at the desired position thereon. This means of adjustment permits the blade A to be moved to or from its opposite blade A' without varying the angular position of their bodies relative to each other, so that the

blades adjust at their outer end portions equally with the adjustment at their inner extremities. The stem *d* of the rod-connecting bar D' is secured to the supporting-bar E, so as to have pivotal movement thereon. It passes through an opening formed in the angular arm H, which latter is rigidly secured to the central portion of said bar E. A set-screw, *h*, passes through the free end of this angular arm, and has end bearings against the outer extremity of the stem *d'*. By this means the blade A' may be angularly adjusted relative to blade A.

It is apparent that different changes may be made in the detail construction of the speculum without departing from my invention. Thus the extension might be made at the middle or at the outer end of the blade, instead of at the inner end; and instead of having the said extension slide within sleeves, the reverse of this might be done, in which instance the extension-body would be provided with sleeves which would have movement over the main body of the blade. It is likewise apparent that instead of having sleeves formed on the rods in either of these two instances, the said rods themselves may be made tubular in part or in whole, and of different diameter, so that the rods of one part of the blade may slide within the tubular rods of the other part of the blade. So, too, instead of the set-screw *h*, a stud or pin might be formed on stem *d'*, and pass through a plain slot in the free extremity of the arm H, this stud or pin being suitably screw-threaded to permit of the adjustment of a nut thereon, whereby the bearing of said nut against the arm H will cause the desired angular adjustment of the blade A'. It is not necessary that this blade should pass through an opening in said arm, as the latter may be made without the same, and the blade be pivoted to its supporting-bar on the side thereof opposite to that on which said arm is secured.

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

1. The combination, with the series of rods *a*, forming blade A, and fastened at their outer extremities to connecting-bar D, of cross-rod

G, to which stem *d* is rigidly secured, and arms F, upon which said cross-rod has sliding movement, substantially as set forth.

2. The combination, with rods *a* and connecting-bar D, formed with stem *d*, of cross-rod G, having perforated end bodies, clamp-screws *g*, and arms F, substantially as set forth.

3. The combination, with the series of rods *a'*, forming blade A', and connecting-bar D, formed with stem *d'*, of the supporting-bar E, to which said stem is pivoted angular arm H, and suitable means for adjusting the stem relative to said arm, substantially as set forth.

4. The combination, with the series of rods *a'*, forming blade A', and connecting-bar D', formed with stem *d'*, which is secured by pivotal engagement to supporting-bar E, of the angular arm H and adjusting-screw *h*, which latter passes through the free extremity of said arm, substantially as set forth.

5. The combination, with the series of rods *a'*, forming blade A', and connecting-bar D', provided with stem *d'*, pivoted to supporting-bar E, of the angular arm H, formed with an opening, through which said stem passes, and adjusting-screw *h*, substantially as set forth.

6. In a speculum-blade formed with a series of rods fastened in a connecting cross-bar at their outer extremities, the combination, with an adjustable extension-body, of a connecting-rod which extends rearward through an opening in said cross-bar and projects from out the stem of the same, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 24th day of April, 1878.

ADDISON BRADFORD. [L. S.]

Witnesses:

N. J. DE GRAFF,
S. H. FRENCH.