

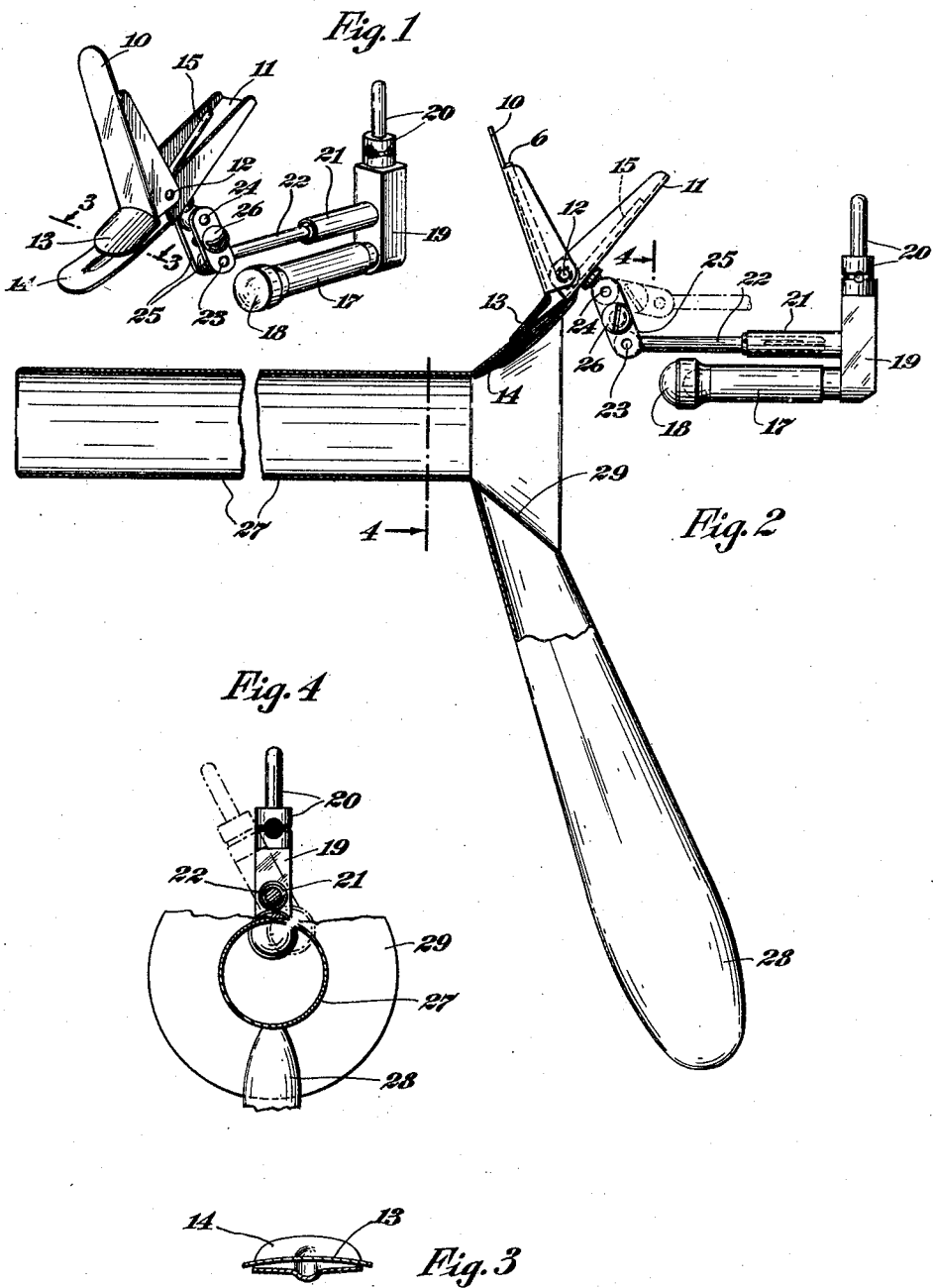
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ILLUMINATING ATTACHMENT FOR SPECULA

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ILLUMINATING ATTACHMENT FOR SPECULA

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My present invention relates generally to surgical instruments, and has particular reference to specula, more especially to an illuminating attachment therefor.

It is a general object of my invention to provide a device which is so constructed as to be removably applicable, as an attachment, to a wide variety of specula, more particularly, to the rear or outer ends thereof, for the purpose of providing a convenient and efficient means for projecting a beam of light longitudinally forward. Since specula are manufactured and constructed in a variety of shapes and styles, depending upon the particular uses for which they are designed, some specula, for example, being relatively large and others relatively small; and since specula in general differ widely, one from the other, in the configuration and nature of their rear ends; it is a more particular object of my present invention to provide a removable lighting attachment which is capable of adapting itself readily and expeditiously to the particular characteristics of almost any given speculum with which it is to be used.

Briefly, my invention resides in the provision of a clamp of particular nature and construction, with which there is adjustably associated a lamp, preferably in the form of a tube, having a miniature bulb and a suitable lens or window associated with the forward end of the tube. In accordance with my invention, the clamp is of such a character as to be expeditiously applicable, in a removable manner, to the rear edge of one wall of a speculum; and it is a particular feature of my invention to provide the clamp in a manner whereby it may adjust itself securely to this rear wall, regardless of the particular configuration, curvature, or size of the rear end of the speculum with which it is used.

Furthermore, in accordance with my invention, the lamp, preferably a lamp tube of the character mentioned, is associated in an adjustable manner with the clamp so that it may be adjusted into a wide variety of positions at variable distances from the clamp and also at variable angles with re-

spect thereto. More particularly, I support the lamp in such an adjustable manner that the employment of the device with any given speculum may be accompanied by a lamp tube adjustment which will project a concentrated light beam forwardly through the speculum along a desired line parallel to the axis of the speculum.

One of the features of my invention lies in constructing the clamp in the form of two mutually pivoted jaws provided with beams for constantly urging them together.

Another feature lies in constructing the jaws with different predetermined curvatures which enable the device to adapt itself readily and efficiently to different types of specula.

A further feature lies in mounting the lamp with the aid of a pivot pin or the like which is adjustably secured to one of the jaws, the lamp itself being pivotally mounted with respect to the pin.

I achieve the foregoing objects and advantages, and such other objects and advantages as may hereinafter appear or be pointed out, in the manner illustratively exemplified in the accompanying drawing, wherein—

Figure 1 is a perspective view of a device of the present character;

Figure 2 is an elevational view of the device associated, by way of illustration, with the rear end of one particular type of speculum;

Figure 3 is an enlarged cross-sectional view taken substantially along the line 3—3 of Figure 1; and

Figure 4 is a cross-sectional view taken substantially along the line 4—4 of Figure 2.

The clamp which I prefer to employ consists of two jaws 10 and 11 pivoted together as at 12, the forward portions 13 and 14 thereof being the gripping portions and being constantly urged together by any suitable means, preferably a spring. In the illustrated embodiment, the spring consists of a portion wound around the pivot 12, with one end 15 engaging the inner surface of the jaw 11, and the other end 16 engaging the inner surface of the jaw 10. Pressing the

jaws 10 and 11 together, as with the thumb and forefinger, separates the forward portions 13 and 14 to permit them to be applied over the rear edge of a wall of a speculum, whereupon the spring, in tending to unwind, presses the jaw portions 13 and 14 toward each other.

In accordance with my invention, the jaw portion 14 is longer than the portion 13 and is convexly curved longitudinally in the manner shown. This is the jaw which is adapted to engage with the inner surface of the speculum wall, and the longitudinal curvature permits this jaw to adapt itself readily to those specula, such as a vaginal cystoscope, wherein the rear end flares outwardly in a curved manner. The jaw portion 13, on the other hand, is constructed so as to be convexly curved transversely thereof, in the manner shown. This jaw engages with the outer surface of the speculum wall, and the transverse curvature enables the jaw to adapt itself more readily to the corresponding curvature of the speculum wall.

It is, of course, not intended that the entire surface of each jaw will lie flush with the corresponding surface of the speculum wall to which the device is applied. The construction herein illustrated and described is peculiarly capable, however, to engage securely and frictionally with a wide variety of speculum walls, and it is immaterial which particular jaw portions accomplish this result. In some cases, the firmness of grip is due primarily to the longitudinal curvature of the jaw 14; in others to the transverse curvature of the jaw 13; frequently to the cooperative action of both jaws.

The security with which the clamp engages the particular speculum to which it is applied is obviously important, and this advantage is closely coupled with the capability of accurately adjusting the lamp of the present device into that particular desired position which most satisfies the operator's particular requirements. The lamp preferably employed is in the form of a tube 17 having a window or lens 18 at the forward end thereof and being mounted at its rear end to one end of a post 19. The latter is preferably provided at the opposite end with suitable terminals 20 with which electrical connections may be made to supply the necessary current for the lamp in the tube 17. Projecting from the post 19 along a direction parallel to the tube 17, yet offset with respect to the axis of the latter, is a pivot bearing 21 adapted to engage frictionally over the rear end of a pivot pin 22. The forward end of the pin 22 is pivoted as at 23 to the lower end of a link whose opposite end is pivoted as at 24 to the jaw 11. The link herein illustrated by way of example consists of two spaced strips 25 secured together by means of the stud 26.

The adjustability of the lamp will now be obvious. The link 25 may be swung into any desired position around the pivot 24, and in this way the lamp may be moved nearer to or further from the jaw 11, as may be desired. Similarly, the pivot pin 22 may be swung into any desired position around the pivot 23, and in this way the angularity of the lamp tube with respect to the clamp may be varied, as desired. A further adjustability lies in the pivotal relationship of the lamp tube 17 with respect to the pin 22. In Figure 4, for example, I have shown the manner in which the lamp tube may be swung along an arc around the pivot pin 22 as an axis.

When the device is used, it is first clamped to a convenient rear edge of one wall of the speculum. The link 25, the pivot pin 22, and the lamp tube 17 are then adjusted in accordance with the capabilities of the adjustable mounting, so that the concentrated beam which the lamp produces may be caused to project forwardly through the speculum along a predetermined line or path parallel to the axis of the speculum. A probable adjustment is illustrated in full lines in Figure 4, and it is to be noted that the present device is such as to interfere by a minimum amount, if at all, with the free contemplated use of the speculum and of the instrument or instruments which are to be inserted forwardly through the speculum by the operator. In Figure 4, for example, it will be obvious that the major portion of the rear speculum end is clear of encumbrance, as a result of which the operator may not only obtain a clear and unimpeded view forwardly through the speculum, but may at the same time insert instruments therethrough.

Although I have illustrated the device associated in an illustrative manner with a proctoscope 27 having a handle 28 and a conically shaped, flaring rear end 29, the description hereinbefore given will make it understood that the device may be applied with equal facility to a wide variety of specula in general, regardless of the particular type of rear end which any given speculum may have. The adjustable arrangement of my device permits the lamp to be positioned in a convenient, unannoying, and unencumbering location, with the light beam projected forwardly along a desired line parallel to the axis of the speculum. This capability of adjustment is obviously due to the particular supporting arrangement which I have provided, especially to the ability to adjust the lamp not only to variable distances from the clamp but also to variable angularities with respect thereto.

Although it is believed that the advantages of my present attachment will be read-

ily appreciated by those skilled in the art from the description herein contained, I might mention that the efficiency and convenience of my device are particularly valuable and important in the light of what the medical profession has usually been compelled to resort to in using specula in general. Frequently, operators have used nothing more than an ordinary electric lamp attached to a cable, wire, or goose-neck conduit; and in attempting to cast a beam of light forwardly through the speculum, a crude procedure of this character is obviously cumbersome, annoying, and inefficient. Not only is one hand of the operator engaged in supporting such a lamp, and hence unavailable for operative purposes, but usually the lamp must be held either in the line of the operator's vision or so far to one side as to project a beam obliquely, rather than directly forwardly, through the speculum. Some operators have attempted to solder some sort of crude support to the speculum in order to carry a lamp. My present attachment is obviously capable of obviating the necessity for any such cumbersome procedures, and its ready adaptability to all sorts of different specula makes it particularly useful for the purposes for which it is designed.

It will be obvious that changes in the details herein described and illustrated for the purpose of explaining the nature of my invention may be made by those skilled in the art without departing from the spirit and scope of the invention as expressed in the appended claims. It is therefore intended that these details be interpreted as illustrative, and not in a limiting sense.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent is—

1. As an attachment for a speculum having a belled rear end, a lamp, and a clamp associated therewith and adapted removably to engage the rear edge of one wall of said rear end; said clamp comprising pivotable jaws, one of which is convexed longitudinally and the other of which is convexed transversely.

2. As an attachment for a speculum having a belled rear end, a lamp, and a clamp associated therewith and adapted removably to engage the rear edge of one wall of said rear end; said clamp comprising pivotable jaws adapted frictionally to engage opposite surfaces of said wall, the jaw adapted to engage the outer surface being convexly curved transversely thereof.

3. As an attachment for a speculum having a belled rear end, a lamp, and a clamp associated therewith and adapted removably to engage the rear edge of one wall of said rear end; said clamp comprising pivotable jaws adapted frictionally to engage oppo-

site surfaces of said wall, the inner jaw being longitudinally curved and the outer jaw being transversely curved.

4. As an attachment for a speculum having a belled rear end, a clamp comprising a pair of spring-pressed pivotable jaws adapted to engage opposite surfaces, respectively, of the rear edge of one wall of said rear end, a lamp tube adapted to project a concentrated light beam and provided with a pivot bearing offset from and parallel to the axis of the tube, a pivot adapted to engage with said pivot bearing so as to permit the lamp tube to be rotated bodily around said pivot as an axis, and means adjustably securing said pivot to one of said jaws to permit said pivot and lamp tube to be positioned at variable distances from, and at variable angles to, said jaw.

5. As an attachment for a speculum having a belled rear end, a clamp adapted to engage said rear end, a lamp tube, an adjustable means for supporting the lamp tube at variable distances from the clamp and at variable angles with respect thereto, said means comprising a pin pivotally articulated at one end to said clamp, and a sleeve carried alongside of the lamp tube and adapted to engage the other end of said pin to permit rotation of the lamp tube around said pin as an axis.

6. As an attachment for a speculum having a belled rear end, a clamp adapted to engage said rear end, a lamp tube, an adjustable means for supporting the lamp tube at variable distances from the clamp and at variable angles with respect thereto, said means comprising a link pivotally articulated at one end to said clamp, a pin pivotally articulated at one end to the opposite end of said link, and a sleeve carried alongside of the lamp tube and adapted to engage the other end of said pin to permit rotation of the lamp tube around said pin as an axis.

7. As an attachment for a speculum, a clamp adapted to engage the rear end of the speculum, a lamp tube, means articulating the lamp tube to the clamp to permit said tube to be adjusted toward and away from the clamp and into variable angles with respect thereto, said means including a pin, and a sleeve carried alongside of the lamp tube and adapted to engage around said pin so as to permit an additional adjustment of the lamp tube rotationally around said pin.

In witness whereof I have signed and sealed this specification this 10th day of September, 1931.

FREDERICK CHARLES WAPPLER.