

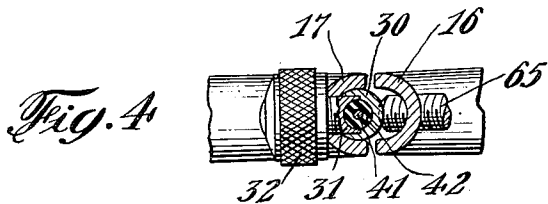
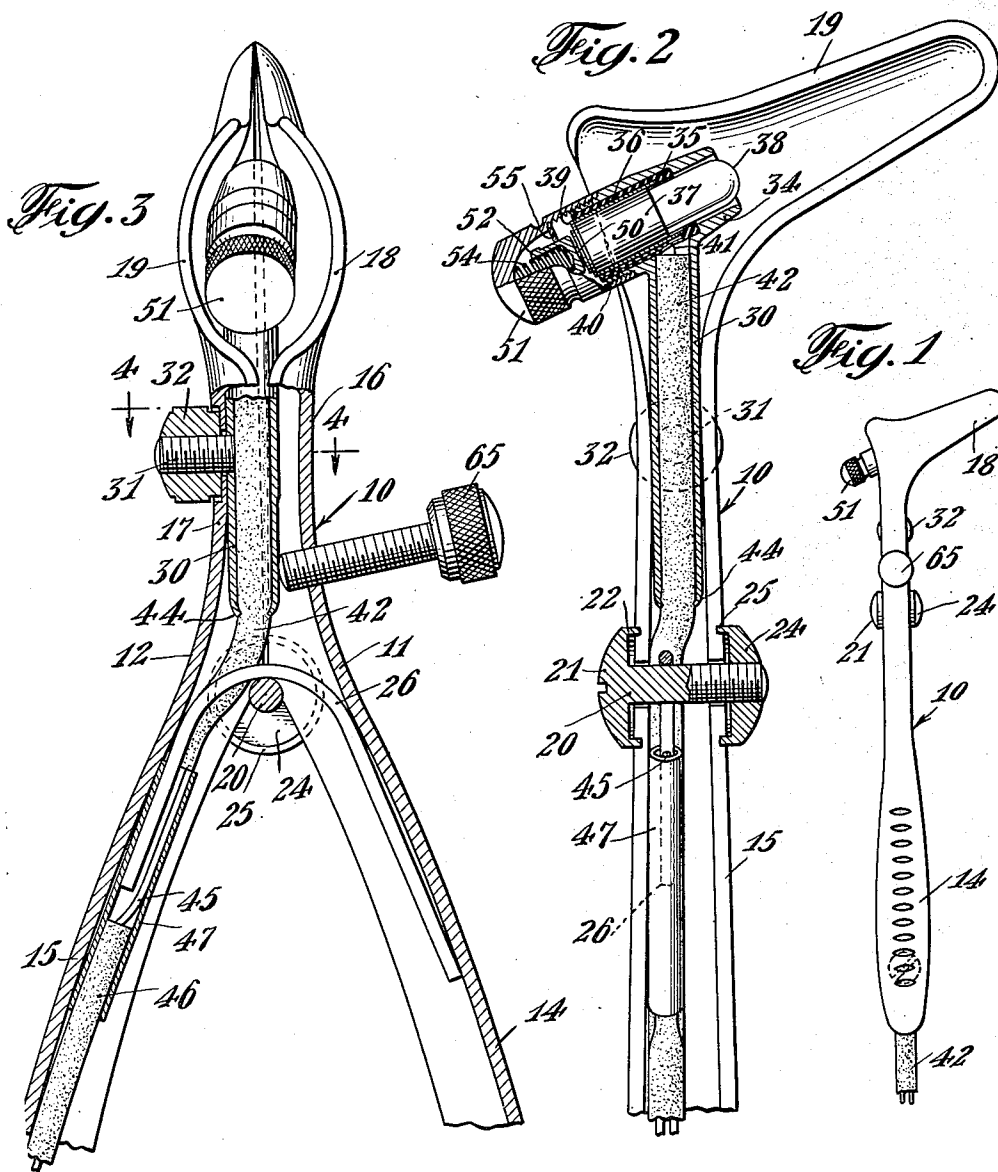
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2,592,190

ILLUMINATED SPECULA

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ILLUMINATED SPECULUM

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1 Claim. (Cl. 128—6)

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This invention relates to improvements in specula and, more particularly, to improvements in illuminated nasal specula.

An object of the present invention is to provide a nasal speculum having a light carrying member secured therewithin in such fashion as to direct rays of light from a bulb in the carrier toward the objective end of the speculum.

Another object of the invention is to provide a nasal speculum having a light carrier secured to one blade thereof in such position that the bulb is readily accessible for replacement.

Another object of the invention is to provide a speculum made up of a pair of handle members each having a speculum blade integral therewith, one of which supports a tubular member with an angular light receptacle at the end thereof inclined at the same angle as the speculum blade and so disposed relative to the blade that a light bulb in the carrier is accessible at the rear thereof.

Another object of the invention is to provide improved electrical connections for the light bulb receptacle.

A further object of the invention is to provide a speculum, as aforescribed, in which the material of the speculum serves as a part of one electrical conductor and in which provision is made for assuring good electrical contact between an electrical conductor and the speculum.

In carrying out the foregoing and other objects of the invention, a speculum is constructed for the major part in conventional fashion, being formed of two handle members connected together for relative rotation and each having at one end thereof an integral speculum blade which is directed upwardly and outwardly relative to the handle when the handle is in vertical position. These two blades cooperate in forming a substantially funnel-shaped expansible member which can be expanded by drawing together the lower end of the handle in the usual manner, thereby exposing a field of observation to the user of the instrument. In order that such field of observation can be illuminated, a tubular member is secured to one handle part, such tubular member having a tubular carrier at the upper end thereof, which carrier has an angular relation substantially the same as the angular relation of the blade and the handle. The carrier serves to receive a small electric light bulb which can be introduced therinto through the rear end thereof which extends a short distance beyond the open outer, or mouth, end of the speculum. The light bulb can be held in place by a cap threaded

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onto this outwardly extending end of the carrier and serving in conjunction with the tubular member and the handle of the speculum as part of one conductor for supplying energy to the light bulb. Due to this arrangement, it is possible to replace light bulbs without removing the carrier and the supporting tubular member from assembly with the speculum.

Other features, objects and advantages of the present invention will become apparent by reference to the detailed description of the accompanying drawings, wherein—

Fig. 1 is a side elevation of an instrument embodying the invention;

Fig. 2 is an enlarged vertical section through a part of the instrument shown in Fig. 1;

Fig. 3 is an enlarged view, partially in section, taken at right angles to Fig. 2; and

Fig. 4 is a section taken substantially on line 4—4 of Fig. 3.

Referring now to the drawings, 10 indicates generally a speculum made up of a pair of complementary members 11 and 12 which are so shaped as to provide handle portions 14 and 15, respectively, and neck portions 16 and 17, respectively, terminating in speculum blades 18 and 19, respectively. These members 11 and 12 throughout the portions 14, 15, 16 and 17 thereof are of substantially U-shape in cross-section as illustrated in Fig. 4. The two parts 11 and 12 are connected for hinge-like movement by means of a bolt 20 against which arc-shaped formations of the members bear, such bolt having a head 21 with an annular flange 22 fitting in a circular recess in expanses of each member, and a nut 24 having a similar flange 25 fitting in an opposite circular recess. A wire spring 26 is looped around the bolt 20 with its ends bearing against the handle parts 14 and 15. This spring serves normally to retain the speculum blades 18 and 19 in their most contracted position.

In order that illumination may be provided for the speculum, a tubular member 30 is fastened to the part 17 of member 12 by means of a threaded stud 31 secured to the member 30 and passing through an aperture in part 17, such stud being engaged by a nut 32. The upper end of the tubular member 30 has an angular tubular cross part 34 which may be formed either integrally with the member 30, or may be made of a separate part secured thereto in any well known fashion. The tubular cross part 34, which serves as a light bulb carrier, has the same angular relation to the member 30 as the blade 19 has to the handle member 12 of which it is a part,

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Carrier 34 is counter-bored to receive a sleeve 35 of insulating material, which sleeve in turn has a metallic sleeve 36 fitting therein with a press fit. A shoulder on the insulating sleeve 35 limits the extent to which the metallic sleeve can be forced toward the objective end of a carrier, and this metallic sleeve serves to receive the tubular base 37 of an electric light bulb, the envelope of which is indicated at 38. The tubular base 37 has a rim 39 bearing against the outer end of the sleeve 36 to limit inward movement of the bulb.

In order that the sleeve 37 may serve as one contact for the light bulb, which is so constructed as to have the base thereof serve as a terminal for the filament of the bulb, a groove is provided in the insulating sleeve 35, as indicated at 40, for the passage of an electric conductor 41, shown in dotted lines in Fig. 2. The groove is of such diameter as to receive the conductor 41 snugly and, if desired, a spot of solder may be employed to lock the conductor positively to the metallic sleeve. Conductor 41 is encased in insulating material 42 which extends through the tubular member 30 and is retained therein by crimping the end of this tubular member 30 as indicated at 44. This insulated conductor is one of a pair utilized for supplying energy to the bulb within the carrier 34. The other conductor 45 of the pair has a part of its insulating covering 46 fitted in a metallic sleeve 47 to which sleeve the conductor 45 is secured by solder. Sleeve 47 is so positioned as to receive one end of the spring 26 which spring serves to retain the sleeve in place and to assure good electrical connection between the conductor 45 and the handle part 12.

Since the handle part 12 serves as one side of the electrical circuit, it follows that this circuit can be traced from conductor 45 through the handle to the tube 30 and from the tube 30 to the carrier 34. In order that the circuit may be completed to the central terminal 50 on the base of the light bulb, use may be made of a cap 51 threaded onto the rear end of the carrier as shown in Fig. 2. Within the cap 50 is a cup-shaped contact member 52, pressed outwardly by spring 54 and restrained from separation from the cup by a spring disk 55 through which a part of the cup passes. A shoulder on this cup 52 serves to limit movement of the cup under the impetus of the spring. The circuit, therefore, continues from the shell of the carrier 34 through the cap 51, spring 54, cup 52 to the bulb terminal 50 and thence through the filament of the bulb to the shell 37, metallic sleeve 36 and conductor 41. If desired, the twin conductors can be locked to the handle part 15 by a threaded screw passing between the two insulated conductors into a threaded aperture in the handle, the head of such screw being shown in dotted lines in Fig. 1.

The usual adjusting screw 65 is shown as being threaded into a tapped opening in the part 16 with the end of the screw bearing against the tubular member 30. This adjustment is provided for locking the speculum in expanded condition so that an area under observation can be

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exposed without necessity of continuous application of manual compression to the handle parts 14 and 15.

By reference to Fig. 2, it will be seen that the carrier 34 is so positioned relative to blade 19 that the outer end of the carrier extends a slight distance beyond the large opening or mouth of the blade. With this arrangement, therefore, a change of bulbs or replacement of a burned-out bulb can be accomplished by merely disengaging the cap 51 and extracting a bulb from the sleeve 36, replacing the same and replacing the cap. All of such manipulation takes place outside the confines of the funnel-like speculum with the result that such change can be accomplished with a minimum of time expended and labor involved. It will also be evident that the entire light carrier can be separated from the speculum if so desired without involving a complicated separation or dismantling of parts.

It is to be understood that the present invention is not to be limited to the present embodiment but is to be limited only by the scope of the following claim.

We claim:

An instrument of the type described comprising a pair of hingedly connected members carrying complementary blades defining a substantially funnel-shaped speculum, a metallic cylinder secured to the inner surface of one of said members, a metallic cross tube at the top of said cylinder forming a light bulb carrier having the major part thereof mounted adjacent the wall of one of said blades in position to direct rays of light from a bulb in the carrier toward the objective end of the speculum, the rear end of said carrier extending beyond the rear edge of said speculum, a cap attached to the rear end of said carrier to close said end and to retain a bulb therein, said cap being removable from the carrier to make a bulb therein accessible outside the confines of said speculum for removal and replacement while the major part of the carrier is within the speculum, and means for conducting electrical energy to a bulb in said carrier, said means having as part thereof said cap which when attached to the carrier completes the energizing circuit.

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