

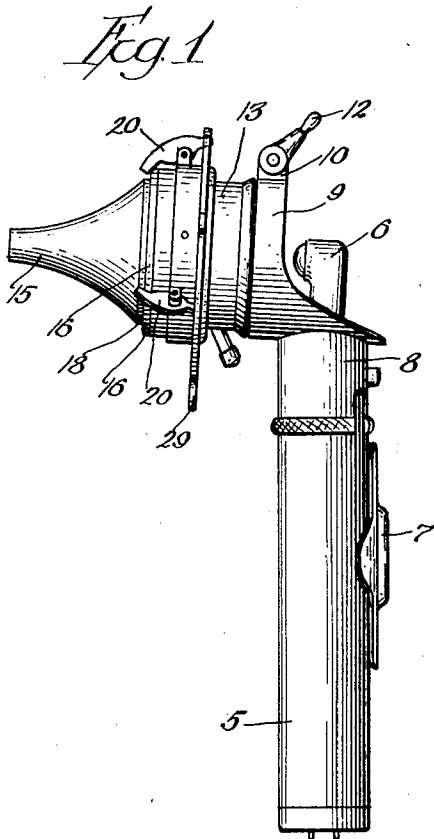
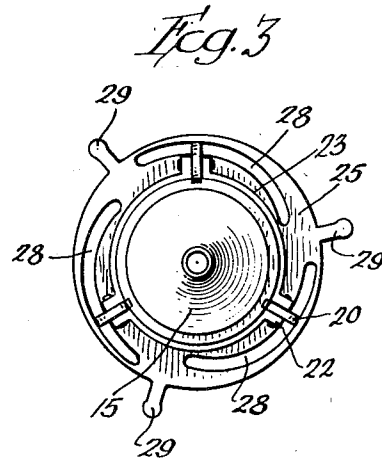
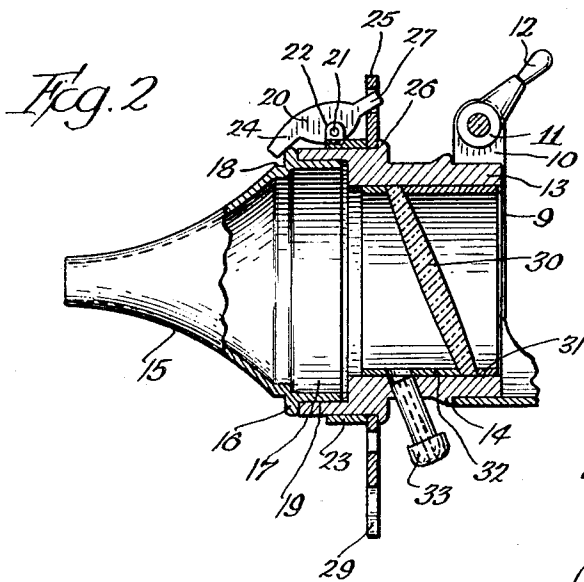
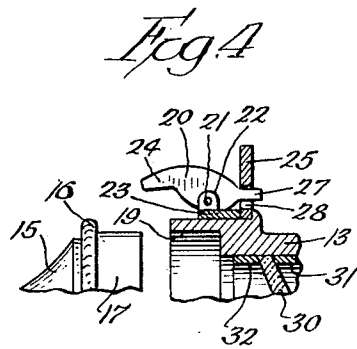
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MOUNTING DEVICE FOR INSTRUMENTS

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MOUNTING DEVICE FOR INSTRUMENTS

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3 Claims. (Cl. 128—9)

My invention relates to instruments, and it has more particular reference to means for mounting a surgical instrument, preferably having an annular base, upon a holder or head carried by a handle.

In the treatment and inspection of cavities of the human body such as the nose, the ears, and the like, it is the practice to employ tubular or conical instruments known as specula, proctoscopes and the like. These structures are usually hollow so that, after they are inserted into the cavity, the physician or surgeon may examine the internal tissue at the end of the structure and treat said tissue by divers means. The specula or proctoscopes and the like are, of course, of a variety of shapes and lengths, and for convenience in handling them are sometimes mounted upon a convenient handle or similar structure.

In the improvement which I have devised I employ a handle in which an illuminating bulb may be moved out of and retracted therein and upon the illuminated end of the handle there is a head to carry the speculum or other instrument. In the present structure the head is provided with novel means whereby the speculum or other instruments may be readily attached to and detached from the head, and the head and attaching means are constructed so that the instrument is securely anchored on the head while the instrument is in use. On account of the particularly novel construction of the attaching means it is possible to employ speculums and proctoscopes of different shapes and sizes so that it is necessary to provide only one head for use with a variety of instruments.

The present invention has numerous objects in view, among which may be mentioned the provision of a device of the character described that is easy to manipulate, is dependable in operation, is novel in construction and is simple in the arrangement of its parts. These and other objects I prefer to accomplish by means of the structure herein disclosed and which is more particularly pointed out in the appended claims. Reference is made to the accompanying drawing that forms a part of this specification.

In the drawing:—

Figure 1 is a vertical side elevation of my improvements showing the use of the same in connection with a speculum for nasal or auricular use.

Figure 2 is a vertical axial section of the upper portion of the structure shown in Figure 1, a portion being shown in elevation, and drawn to a larger scale.

Figure 3 is a front elevation of my invention, detached from the handle, and looking towards the apex of the speculum.

Figure 4 is a fragmentary view partly in section showing the parts released to remove the speculum.

The drawing will be understood as more or less schematic for the purpose of illustrating a typical or preferred embodiment of my invention, and in said drawing the same reference characters have been employed to designate similar parts wherever they appear throughout the different views.

Referring more particularly to Figure 1; the handle 5 is of cylindrical shape in cross section and of the length sufficient to provide a ready grasp when taken in the hand, and at its upper end there is a socket to receive an L-shaped bulb 6 that may be retracted into and out of the handle by moving the slide 7 in the proper direction by the thumb of the operator. The means for mounting the head upon the handle consists of a short tube 8 that is removably mounted on the upper end of the handle by means of a pin and bayonet slot construction, and, at one side of its axis, said tube is provided with a split band or ring 9 in which the body of the head is mounted. The ends of the band or ring terminate in radially disposed ears 10 that are moved towards and from each other by means of a cam structure 11 that is actuated by a lateral lever 12.

The head comprises a tubular body 13 which has an annular flange 14 upon its exterior surface that provides a stop or shoulder to engage with the adjacent edge of the split band 9 and, after said parts have been assembled the cam is operated to constrict said band firmly around the adjacent portion around the body.

The instrument shown in the drawing is an ear or nose speculum which has a tapered or conical portion 15, and at the base of the cone there is an annular flange or rib 16 and beyond this rib there is a cylindrical portion 17 of less width than rib 16 for insertion into the head. As seen in the drawing there is a slight shoulder made at the base of the cone which is indicated by the numeral 18.

Other instruments, such as ear or nose speculum having operating portions of different shapes and sizes, as well as proctoscopes and similar instruments may be employed in connection with the head. In each instance, however, the base portion of the instrument should comprise the flange or rib 16 and the cylinder portion 17, or the equivalent, thus permitting interchangeability

of the instruments and their ready insertion in or removability from the head. The bore of the head at its end opposite the clamping band 9 is preferably increased in diameter as at 19 and the cylindrical portion 17 of the instrument is adapted to be inserted in this increased bore until the adjacent end edge of the tubular body abuts the flange or rib 16 after which the attaching mechanism is operated to lock the instrument in position.

The means employed to secure the instrument upon the head consists of a plurality of eccentrically operating elements such as pivoted latches or pawl devices that are simultaneously manipulated by rotating a cam slotted wheel. The eccentric elements or pawls 20 are preferably three in number and they are each mounted upon a pivot pin 21 extending between spaced ears 22 that project radially from an annulus 23 surrounding and secured to the exterior of the head by "sweating" (or otherwise) when the parts are being assembled. The pawls are of eccentric or irregular shape as shown in the drawing and each has an outer portion or finger 24 that is adapted to press upon the flange or rib 16 of the instrument, adjacent the shoulder 18, when said pawl is operated to clamp the instrument on the head. The pressure of the fingers 24 of these pawls is in a direction to urge the flanges or ribs 16 against the end of the head and thereby maintain the instrument against rotative and longitudinal or axial movement.

The latches or pawls are actuated by means of a wheel or washer-like plate 25, the central opening of which is sufficient to allow it to rotate upon the portion of the head next to the annulus 23 and it is mounted between the inner edge of this annulus and a rib 26 formed on the head. The pawls are provided with studs 27 that project from the same in a direction opposite to the fingers 24 and they enter eccentric or cam slots 28 made in the wheel 25 so that when the wheel is rotated in one direction or the other the studs 27 will be moved in and out towards or away from the head, while the fingers will be correspondingly moved away from or towards the flange or rib 16 on the instrument.

In other words, the rotative movement of the wheel 25 causes a rocking or see-sawing action of the pawls 20 which causes the fingers on said pawls to engage or disengage the instrument. On account of the elongated form of the cam slots 28 a very definite and dependable grip is had upon the instrument base by the fingers 24, and in order to conveniently operate the wheel I provide the latter with finger-grips 29 that project radially from its edge.

In connection with the head I have shown means whereby the operator may treat the cavity under inspection with air, gas, or other fluid. To this end I mount a double convex lens 30 in the main bore of the tubular head 13 and I prefer to position this lens obliquely instead of at a true right-angle to the axis of the head in order that light rays from the bulb 6 will not be reflected back into the eyes of the operator. A convenient manner of mounting the lens consists of two counterpart bushings 31 and 32 that are preferably formed by cutting a metal cylinder

obliquely at the angle desired for the lens 30 and inserting these bushings into the head with the lens between them. The joint between the bushings and the lens are made air-tight, by cement or other material, and a hose-receiving stub 33 is inserted into a hole that extends through the wall of the head 13 and the bushing 32, as shown in Figure 2 of the drawing. The lens forms a wall of light transmitting material which prevents the gas, air, or vapor from escaping out of the structure so that it must pass into the instrument 15 and be directed thereby into contact with the tissue under treatment.

From the foregoing it will be seen that a variety of instruments, such as a nasal speculum, an ear speculum, a proctoscope, or the like, may be provided with end or basal portions similar to that shown, and that these portions may be readily clamped to the head by operating the wheel which will force the pawls into locking engagement with the instrument base. It will be understood, however, that the structure shown may be modified without altering the principles I have evolved. Therefore, the drawing and the within description are given for the purpose of clearness and understanding only and no unnecessary limitations are to be understood therefrom but the appended claims are to be construed as broadly as permissible in view of the prior art.

What I claim is:—

1. A device of the kind described comprising a handle, a tubular head thereon, a surgical instrument having a cylindrical base inserted in said head, an annular abutment on said base adapted to engage the end edge of said head, a plurality of pawls fulcrumed intermediate their ends on the end portion of said head, the outer portions of said pawls being engaged with said abutment, and an annular member surrounding and rotatably mounted on said head and having eccentrically disposed slots to operatively receive the ends of said pawls opposite the abutment.

2. A device of the kind described comprising a handle, a tubular head thereon, a plurality of pawls fulcrumed intermediate their ends on said head adjacent an end edge thereof, an annular member rotatably surrounding said head and provided with oblique slots to receive and operate adjacent inner ends of said pawls, a surgical instrument having a base inserted in said head, and an annular rib on base that is engaged by the outer ends of said pawls whereby said instrument and said head are maintained against relative longitudinal movement with respect to each other.

3. A device of the kind described comprising a handle, a tubular head thereon, an annular member rotatably surrounding said head and provided with obliquely disposed slots, a plurality of pawls fulcrumed on said head and having their inner ends engaged in said slots, a surgical instrument having a base inserted in said head, and an annular rib on said base engaged by the outer ends of said pawls, the work edges of said pawls being disposed in a manner to urge the base of the instrument into said head when the annular member is rotated to rock said pawls.

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