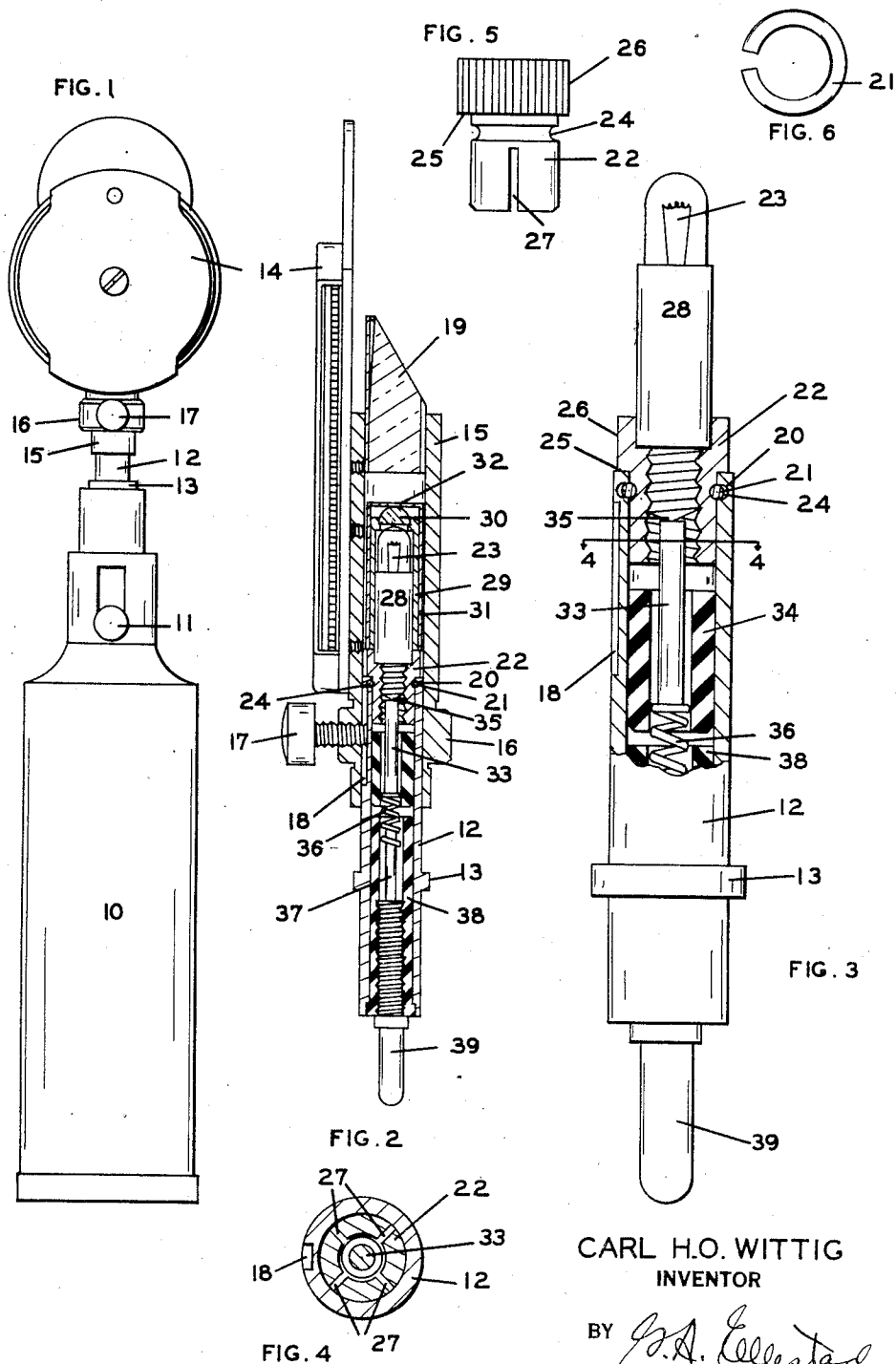


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DIAGNOSTIC INSTRUMENT
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DIAGNOSTIC INSTRUMENT

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6 Claims. (Cl. 240—2.18)

The present invention relates to diagnostic instruments and has particular reference to a lamp mounting for use therewith.

It has been found in the case of certain diagnostic instruments such as ophthalmoscopes, that better results are obtained when the lamp filament bears a fixed and definite positional relation to the instrument head. One of the objects of the present invention is to provide a simple and rugged rotatable support for the lamp so that the filament may be properly aligned with the head. Other objects and advantages reside in certain novel features of construction, arrangement and combination of parts as will hereinafter be more fully disclosed and the novel features thereof will be pointed out in the appended claims.

In the drawing:

Fig. 1 is a front elevation of an ophthalmoscope.

Fig. 2 is an enlarged vertical section of the upper portion of the ophthalmoscope with parts in elevation.

Fig. 3 is an enlarged view of the lamp mounting shown in Fig. 2.

Fig. 4 is a section taken on line 4—4 of Fig. 3. Fig. 5 is a side elevation of the lamp socket, and

Fig. 6 is a detail view of a spring ring.

One embodiment of my invention is illustrated in the drawing wherein Fig. 1 shows an ophthalmoscope having the usual handle 10 and control button 11. Mounted in the handle 10 is a conducting tube 12 having a shoulder 13 for limiting its movement into the handle. The ophthalmoscope head 14 is carried by a sleeve 15 which telescopically engages the tube 12 and is provided with an enlarged annular portion 16 carrying a set screw 17 for engagement with a longitudinal slot 18 formed in the tube 12 so that the sleeve 15 may be moved longitudinally on the tube 12 while being held against rotation during such movement by the set screw 17 and slot 18. The usual ophthalmoscope prism 19 is carried at the upper end of the sleeve 15.

The upper end of the tube 12 is formed with an internal annular groove 20 for holding a spring ring 21. A lamp socket 22 for holding a lamp 23 is provided with an external annular groove 24 and is adapted to be driven into the upper end of the tube 12 until the two annular grooves are in alignment and then the spring ring 21 will hold the socket against longitudinal displacement with respect to the tube. An enlarged shoulder 25 on the socket 22 serves to limit the

movement into the tube and has a knurled edge 26 so that it may be gripped for turning the socket 22 and lamp 23 with respect to the tube for aligning the lamp filament. In order that the lamp filament will remain in its adjusted position it is essential that the socket 22 turn with a great deal of friction and to increase this friction slots 27 are formed in the lower portion of the socket so that such lower portion may bear resiliently against the interior of the tube 12.

The lamp 23 is formed with a long cylindrical base 28 on which is slidably mounted a sleeve 29 carrying a lens 30 while a second sleeve 31 carrying a diaphragm 32 is slidably mounted on the lens carrying sleeve 29.

A contact 33, spaced from the tube 12 by means of insulation 34, is pressed against the center contact 35 of the lamp base 28 by means of a spring 36 connected to a conductor 37 which is spaced from the tube 12 by means of insulation 38 into which said conductor is threaded. The conductor 37 is shaped at its lower end in the form of a push plug 39 which engages a complementary electrical contact, not shown, in the base 10. In use, current may be supplied to the lamp through the conducting tube 12 and the conductor 37, either from batteries located in the handle 10 or from an outside source.

The best results are obtained from an ophthalmoscope when the lamp filament is perpendicular to the plane of the ophthalmoscope head. To so adjust the lamp filament, the set screw 17 is withdrawn from the slot 18 and the head 14 and sleeve 19 are removed from the tube 12. The knurled shoulder 26 is then turned until the filament of the lamp 23 lies in the same plane as the slot 18. Only one adjustment is usually necessary for a particular lamp bulb as the frictional resistance to the turning of the socket is sufficient to retain the lamp in its adjusted position. The annular grooves 20 and 24 and the spring ring 21 serve to hold the socket against longitudinal movement relative to the tube.

Although I have illustrated and described my invention in connection with an ophthalmoscope, it can be as well applied to many other similar diagnostic instruments, such as retinoscopes, otoscopes or the like. It is readily apparent that my improved lamp mounting is easy and inexpensive to manufacture and yet rugged and effective in operation. From the foregoing it is also apparent that I obtain the objects of my invention and provide an improved mounting for the lamp of a diagnostic instrument so that the filament of the lamp may be readily aligned with the instrument.

Various modifications can obviously be made without departing from the spirit of my invention. I claim:

1. In a diagnostic instrument of the type described, an illuminating device comprising a tube, a lamp socket and means for rotatably fastening said socket in said tube, said means comprising an annular groove on said socket, an internal annular groove in said tube and a spring ring mounted in said grooves for holding said socket and said tube in assembled relation with said grooves in alignment.

2. In a diagnostic instrument of the type described, an illuminating device comprising a tube, a lamp socket, means for rotatably fastening said socket in said tube, said means comprising an annular groove on said socket, an internal annular groove in said tube, and a spring ring mounted in said grooves for holding said socket and said tube in assembled relation with said grooves in alignment, and means for increasing the frictional relation of said socket and said tube.

3. In a diagnostic instrument of the type described, an illuminating device comprising a tube, a lamp socket, means for rotatably fastening said socket in said tube, said means comprising an annular groove on said socket, an internal annular groove in said tube, and a spring ring mounted in said grooves for holding said socket and said tube in assembled relation with said grooves in alignment, and means for increasing the frictional relation of said socket and said tube, said last-named means comprising a split portion on said socket bearing against the inner wall of said tube.

4. In a diagnostic instrument of the type described, a tube, an instrument head having a longitudinal bore for receiving said tube, cooperating means between said tube and one end of said bore for permitting longitudinal relative movement while preventing rotative relative

movement, an incandescent filament lamp, a socket for said lamp, means for rotatably mounting said socket in said tube comprising an annular groove on said socket, an internal annular groove in said tube and means for holding said socket and said tubes in assembled relation with said grooves in alignment, and means for increasing the frictional relation of said socket to said tube.

5. In a device of the character described, an ophthalmoscope head, a sleeve secured to the rear side of said head, a prism secured in one end of said sleeve, the other end of said sleeve being open, an illuminating device adapted to fit in the open end of said sleeve, said illuminating device comprising a tube, a lamp socket and means for rotatably fastening said socket in said tube, said means comprising an annular groove on the socket, an internal annular groove in said tube and means extending into both grooves for holding said socket and said tube in assembled relation with said grooves in substantial alignment.

6. In a device of the character described, an illuminating device comprising a tube, a lamp socket and means for rotatably fastening said socket in said tube, said means comprising an annular groove on said socket, an internal annular groove in said tube, and a spring ring mounted in said grooves for holding said socket and said tube in assembled relation with said grooves in alignment, said tube having a longitudinal groove in its outer wall, an instrument head, a sleeve secured to said instrument head for receiving said tube and said socket and a projection extending into said sleeve in predetermined relation to said instrument head for engaging the last-named groove and preventing relative rotation between said sleeve and said tube.

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