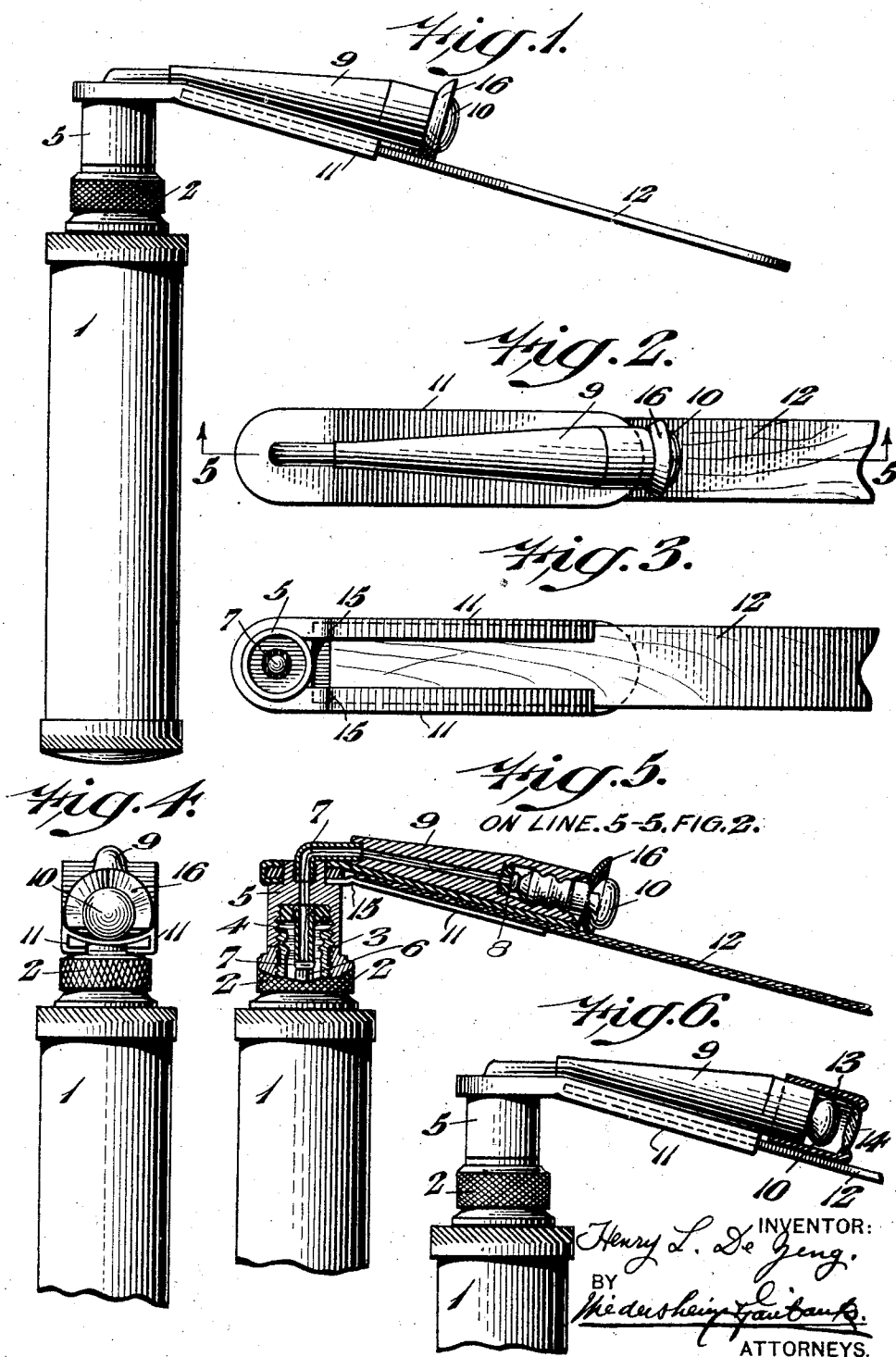


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H. L. DE ZENG
DIAGNOSTIC INSTRUMENT

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DIAGNOSTIC INSTRUMENT.

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My invention relates to a diagnostic instrument for examining any desired orifice of the body or for holding open the wall of an incision in surgery while properly illuminating the interior.

My invention is also adapted to be employed for examining the throat, and comprehends a novel construction and arrangement of lighting device in conjunction with which a blade or member is employed, preferably in such a manner that it may be removed after use for discarding or for sterilization.

The blade may be replaced by any useful form of surgical instrument.

The invention relates particularly to a universal holder for a tongue depressor or other useful device employed in making a diagnosis or in doing a surgical operation where artificial illumination is desired.

One of the essential features of this instrument is a construction whereby the lamp can be located in as close proximity as possible to the object which is to be examined and yet be separate from the detachable member adapted to be held by this device.

Among the advantages contained in this invention is its adaptability to different types of handles so that the instrument may be either self contained or receive its electric energy from an extraneous source of supply.

Another object of my invention is to provide in a device of this character a condensing lens to concentrate the rays of light on the object which is to be examined.

With the above and other objects in view which will hereinafter more clearly appear, my invention comprehends a novel diagnostic instrument.

It further comprehends other novel features of advantage which will clearly appear in the detailed description and the appended claims.

For the purpose of illustrating my invention, I have shown in the accompanying drawings a typical embodiment thereof which is at present preferred by me, since this embodiment has been found in practice to give satisfactory and reliable results. It is, however, to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and

organization of these instrumentalities as herein shown and described.

Figure 1 represents, in side elevation, a diagnostic instrument, embodying my invention.

Figure 2 represents a top plan of the head portion.

Figure 3 represents a bottom plan view of the head portion.

Figure 4 represents a front elevation of the instrument with the spatula removed.

Figure 5 represents a section on line 5—5 of Figure 2.

Figure 6 represents, in side elevation, a portion of the instrument and also a condensing lens and its carrier in assembled position with respect to the head portion of the instrument and its lamp.

Similar numerals of reference indicate corresponding parts.

Referring to the drawings:

1 designates a grasping handle which, as illustrated, is in the form of a casing adapted to contain a storage battery in the usual manner. In order to effect the opening and closing of the circuit through the lamp, a nut 2 is employed which when moved in one direction will light the lamp and which when moved in a reverse direction will open the lamp circuit. The handle 1 has projecting outwardly from it a threaded sleeve 3 which is adapted to engage the internally threaded portion 4 of the head portion 5. The handle is provided with a resiliently mounted post 6 in circuit with the battery and adapted to contact with a conductor 7 which terminates in the lamp socket 8 which forms a part of the lamp carrier 9 which is connected with and forms a part of the head portion 5. The lamp socket 8 is adapted to receive a lamp 10. The lamp carrier 9 is connected with a blade carrier 11 which, as illustrated, is best seen in Figure 3, and is provided with the inwardly deflected flanges which, if desired at any point in their length may be depressed or indented, as at 15, and thus provide a better friction grip on the detachable member 12, which latter may be in the form of a blade or any useful type of appliance adapted to be used with a device of this character.

The electric circuit is the usual circuit employed in battery handles for diagnostic instruments of this general type, one lead of

the circuit extending from the contact plunger in the battery handle to the lamp socket, as shown in Figure 5. The other lead of the circuit extends from the bottom of the battery up through the handle, and is grounded on the metal parts communicating with the lamp socket, being a well known prior art arrangement and not a part of applicant's present invention.

If desired, the lens holder 13 may be employed, which is in the form of a sleeve slidable on the lens carrier and provided with a condensing lens 14.

It will be apparent that in accordance with this invention the light is so located that the object of which the diagnosis is to be made is fully illuminated and the operator can grasp the instrument in one hand and with his thumb or finger close or open the circuit to light or extinguish the lamp.

The member 12 may be of any suitable material which after use can be either discarded or sterilized for future use.

It will be seen from the drawings that in the preferred form of my invention, as herein shown, the electric lamp and the detachable blade or member are preferably so arranged that the axis of the lamp and the axis of the detachable member are approximately parallel with each other when such lamp and member are in their operative positions.

My present invention has many features of utility and advantage not found in any other similar form of instrument. The contacting member may be wholly discarded after use or separately and wholly sterilized. In practice, a wooden spatula is widely used by the medical profession because it may be wholly discarded after use without much expense being entailed thereby. The use of these wooden blades has become general in that perfect sterilization may be obtained. My adaptation of these blades to a suitable holder having a properly arranged electric lighting attachment provides a perfect instrument which is entirely safe antiseptically.

It is of course understood that a suitable blade of any other material may be employed, and, if metal, it may be fully sterilized without injury to the holder, the lamp or the electric connection.

My invention as shown in the drawings provides a lamp in proper position to give the required illumination, since it reaches down well over the attached end of the blade.

It is advantageous in some cases to employ a reflector or shield 16 which as illustrated in the drawing is retained in position by the lamp, but which if desired could be fixed in position.

It will now be apparent that I have devised a new and useful diagnostic instru-

ment which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description, and while I have in the present instance, shown and described a preferred embodiment thereof which will give in practice satisfactory and reliable results, it is to be understood that this embodiment is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

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

1. In an instrument of the character described, a head portion comprising a detachable handle connection, an inclined offset portion depressed toward the handle connection, having a lamp socket, a lamp in the lamp socket, a lens cell secured to the outside of the lamp socket, and a lens in the lens cell in front of the lamp.

2. In a device of the character described, a head portion comprising an upright portion having detachable handle connections and an offset portion rigidly held in inclined relation to the upright portion depressed towards the handle connection, a lamp socket in the end of the offset portion, a lens cell detachably mounted on the end of the offset portion, and a lens in the lens cell in front of the lamp.

3. A diagnostic instrument comprising a handle having a separable connection, a head having two arms rigidly secured together, one arm having a connection fitting the connection on the handle and the other arm a lamp, a slide over the lamp and a lens in the slide aligned with the lamp.

4. A diagnostic instrument comprising a handle having a separable connection, a blade head having two arms secured together, one arm having a connection fitting the connection on the handle and the other arm a lamp, and a lens aligned with the lamp.

5. A diagnostic instrument comprising a handle having a separable connection, a blade head having two arms rigidly secured together, one arm having a connection fitting the connection on the handle and the other arm a lamp, a slide over the lamp, a lens in the slide aligned with the lamp, a blade connection on one arm, and a blade in the blade connection.

6. A diagnostic instrument comprising a handle having a separable connection, a blade head having two arms secured together, one arm having a connection fitting the connection on the handle and the other arm, a lamp, a lens aligned with the lamp, a blade connection on one arm, and a blade in the blade connection.

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