H. L. DE ZENG.

AURISCOPE.

APPLICATION FILED MAR. 5, 1910.

1,062,698. Patented May 27, 1913.

Fig. 1.

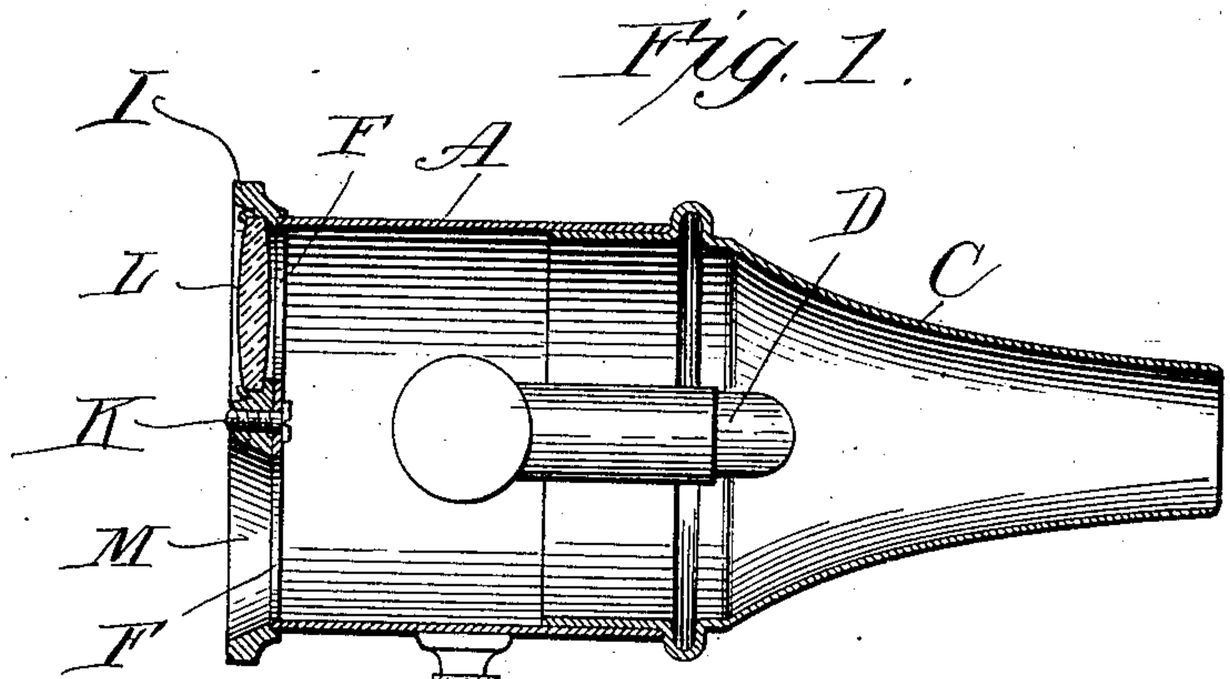


Fig. 2.

Fig. 3.

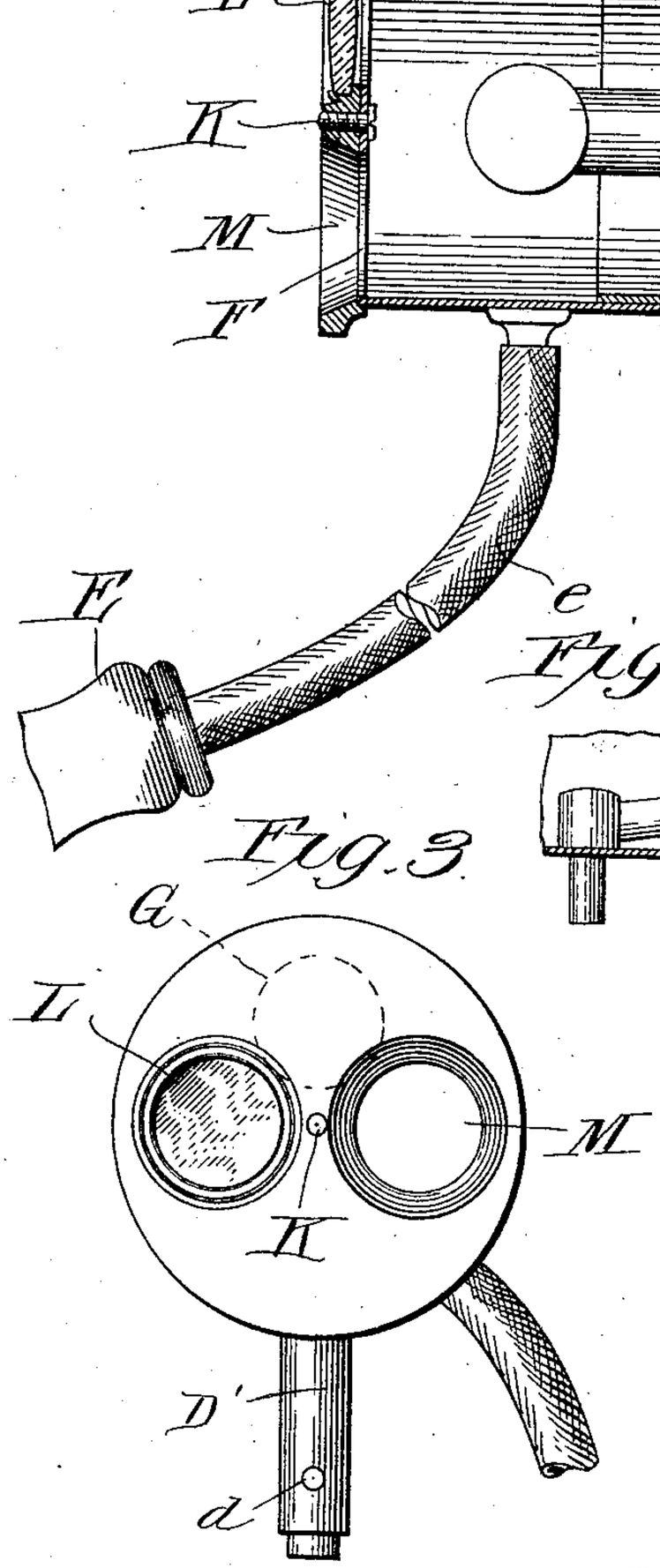


Fig. 4.

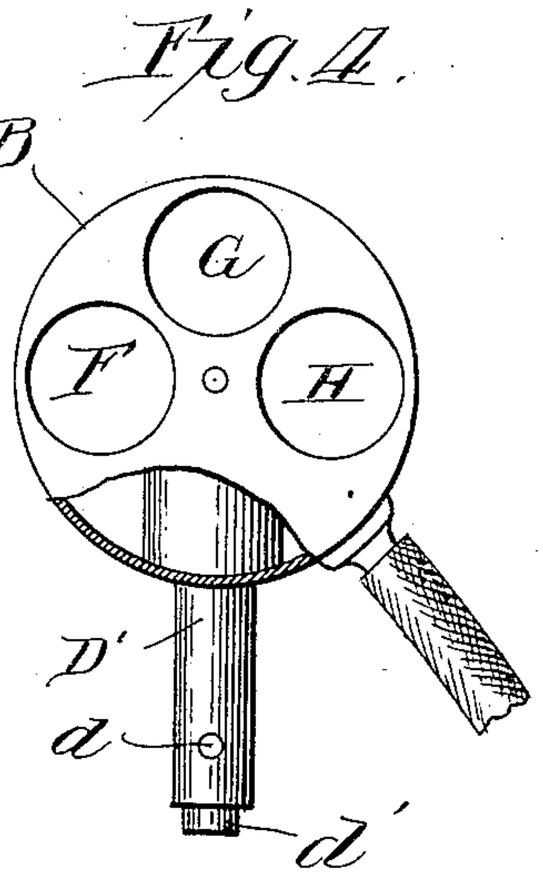


Fig. 5.

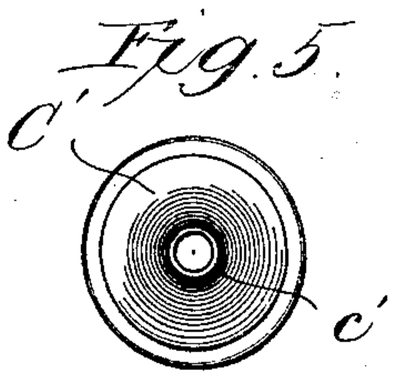


Fig. 6.

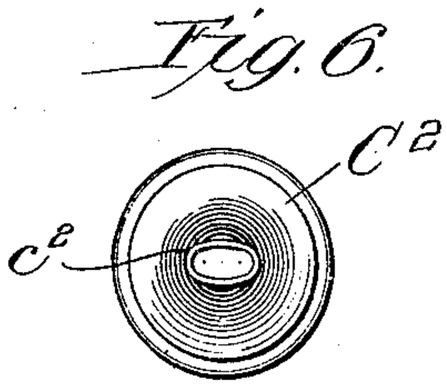
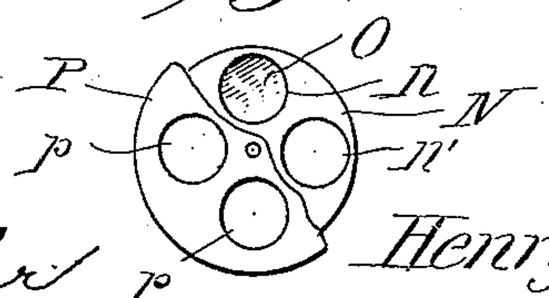


Fig. 7.



Witnesses:

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UNITED STATES PATENT OFFICE.

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AURISCOPE.

1,062,698. Specification of Letters Patent. Patented May 27, 1913.

Application filed March 5, 1910. Serial No. 547,450.

To all whom it may concern:

Be it known that I, HENRY L. DE ZENG, a citizen of the United States, residing at Philadelphia, county of Philadelphia, State of Pennsylvania, have invented a certain new and useful Improvement in Auriscopes, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to surgical devices which are adapted to enter orifices of various kinds in the body to illuminate normally hidden parts, and expose them to an operator so as to enable him to view and at the same time treat them.

The object of my invention is to produce a simple and novel device of the kind specified which will make it possible to perform various operations, manipulations and treatments with the aid of a single device.

The various features of novelty whereby my invention is characterized will hereinafter be pointed out with particularity in the claims; but for a full understanding of my invention and of its object and advantages, reference may be had to the following detailed description taken in connection with the accompanying drawings, wherein:

Figure 1 is a longitudinal section through a device embodying my invention in a preferred form; Fig. 2 is a section taken at right angles to the plane of Fig. 1, showing, however, only a fragment of the casing and the electric light mounted therein; Fig. 3 is a view looking toward the right in Fig. 1; Fig. 4 is a view similar to Fig. 3, the revoluble cap being, however, omitted and a portion of the end wall of the casing being broken away; and Fig. 5 and Fig. 6 are end views, on a smaller scale, showing different types of specula; and Fig. 7 is an end view of a modification, parts being broken away.

Referring to the drawings, A represents a casing, preferably though not necessarily cylindrical in form having one end closed by a wall B and having the other end open.

C is a speculum of any suitable form, the large end of which is telescoped within the open end of the casing and is frictionally held thereby. The speculum is made detachable so that it may be removed and replaced by one which is differently shaped; thereby permitting the device to be used in the ear, nose or any other orifice, large or small, by providing interchangeable specula each of which is adapted to one particular orifice. Within the casing is a small electric light D which extends into the speculum and serves to illuminate the parts to be examined and treated. The supporting post D′ upon which the light is mounted may extend through the wall of the casing and be provided with terminals *d* and *d′*.

E is a rubber bulb or other device for compressing air and it is connected with the interior of the casing by a flexible conduit *e*. The rear wall of the casing has therein three openings, F, G, and H, which, in the arrangement shown, are arranged at 90 degrees apart about the center of the wall and at equal distances from the center.

I is a disk-like cap pivoted at its center to the central point of the rear wall of the casing in any suitable way as, for example, by means of a screw K passing through the rear wall so as to be revoluble therein and screw-threaded into the cap. The cap is provided with two openings L and M so located that in one angular position of the cap, the opening L will register with the opening F and the opening M will register with the opening H; while in a second position of the cap the openings L and H will register as will also the openings M and F. The opening L is provided with a magnifying lens and constitutes the vision-opening in the cap. It will be seen that when the lens registers with the opening F in the casing, this latter opening also constitutes a vision-opening while the registering openings M and H constitute instrument-receiving openings.

In using the apparatus, the operator looks through the lens and inserts the instrument through the instrument-receiving openings. The cap may then be turned so that the instrument may be produced through the opposite side. In this way the operator has a magnified view of the part which is being treated and is able to reach this part either from the right or from the left. When the cap is turned into an intermediate position so as to bring the lens into registration with the opening G in the casing, the opening M in the cap is closed by a solid portion of the rear wall of the casing and the openings F and G are closed by portions of the cap so that the rear of the casing is closed and is provided with a magnifying window through

which the part under treatment may be inspected. This is the condition in which the parts are placed when it is desired to massage the member under treatment, the bulb or other air supply device being manipulated so as to produce air pressure within the casing.

The nozzles or mouths of the speculum may take any desired forms, Fig. 5 showing a speculum C′ having a round nozzle c'; while Fig. 6 shows a speculum C^2 having a nozzle c^2 which is oval in cross-section. Each device may, of course be provided with a whole series of specula whose shapes and sizes differ to suit the various conditions under which the instrument is to be used.

In Fig. 7 I have shown a modification in which there is only one instrument-receiving opening, the lens being mounted in the wall of the casing instead of in the cap. Referring to this figure, N represents the end wall of the casing opposite the speculum and in this wall are two openings n and n'. In the opening n is a lens O. P is a cap similar to the cap in the other form and having two openings therein p and p' arranged so that in one position of the cap they will register respectively with the openings n and n'. In this position of the parts the registering openings p and n constitute the vision opening while the registering openings n' and p' constitute the instrument-receiving opening. When the opening p' registers with the opening n the cap closes the opening n' so that the instrument may be used for massaging.

While I have described in detail only a single preferred form of my invention I do not desire to be limited to the specific details so illustrated and described; but intend covering all constructions and arrangements which fall within the terms employed in the definitions of my invention constituting the appended claims.

What I claim is:

1. In a device of the character described, a casing having a cover with two or more openings therein adapted to register with a speculum extending therefrom, means for producing air pressure within said casing, a lens registering with one of said openings in said cover, and means for closing the other opening or openings when desired.

2. In a device of the character described, a casing having an opening adapted to register with a speculum extending therefrom, and means for introducing air under pressure into the interior of the said casing, there being two or more openings through the wall of the casing opposite said speculum, a lens, and means arranged to bring said lens across one of said openings and close the other opening.

3. In a device of the character described, a casing having a plurality of openings in one wall, a member movably mounted upon said casing and having an opening therein in a position to register with the openings in said casing, a lens in the aforesaid opening in said member, there being a second opening in said member in a position to register simultaneously with one of the openings in said casing when the lens registers with another of said openings, and a speculum extending from said casing opposite the openings.

4. In a device of the character described, a casing having two or more openings in one wall, a member movably mounted upon said casing and having an opening therein in a position to register with the openings in said casing, a lens in the aforesaid opening in said member, there being a second opening in said member in a position to register with one of the openings in said casing when the lens registers with another of said openings, a speculum extending from said casing on the side opposite that having the openings, and means for producing pressure within said casing.

5. In a device of the character described, a casing having two or more openings in one end, a member movably mounted on said casing and having two or more openings therein so located as to register with the openings in the casing, a lens in one of said openings, and a speculum projecting from the opposite end of the casing.

6. In a device of the character described, a casing having two openings in one wall, a plate pivotally mounted on the casing and having therein two openings so located as to register with the openings in the casing in two predetermined angular positions of said plate, a lens in one of said openings, and there being a third opening in said casing so located as to register with said lens in a third predetermined angular position of said plate, and means for creating a pressure in said casing.

7. In a device of the character described, a casing having three openings in one wall, a member movably mounted upon said casing and having an opening therein in a position to register with any one of the openings in said casing, a lens in the aforesaid opening in said member, there being a second opening in said member in a position to register with either one of two of the openings in said casing when the lens registers with the other of said two openings, a speculum extending from said casing opposite the openings, and a lighting medium arranged in said casing.

8. In a device of the character described, a cylindrical casing, a speculum extending from one end of the casing, a wall extending across the opposite end of the casing and having three openings therein, a disk pivoted upon said wall and having therein two

openings which are adapted to register with two of the openings in the wall in predetermined angular positions of the disk, a lens in one of the openings in said disk, and the third opening in said wall being so located that when the disk is moved to register therewith the other opening in the disk is closed by an imperforate portion of said wall, and means for creating pressure in said casing.

9. In a device of the character described, a cylindrical casing, a speculum extending from one end of the casing, a wall extending across the opposite end of the casing and having three openings therein, a disk pivoted upon said wall and having therein two openings which are adapted to register with two of the openings in the wall in predetermined angular positions of the disk, a lens in one of the openings in said disk, and the third opening in said wall being so located that when the disk is moved to register therewith the other opening in the disk is closed by an imperforate portion of said wall, an illuminating device in said casing, a fluid conduit connected with the interior of said casing, and means for forcing fluid through said conduit.

10. A surgical instrument of the character described, comprising a sight tube having two openings in one end thereof, and a speculum communicating with the other end of the sight tube, a disk mounted to turn against the end of the sight tube and having two openings therein adapted to be moved into and out of register with the openings in the sight tube, and a lens in one of said openings.

In testimony whereof, I sign this specification in the presence of two witnesses.

HENRY L. DE ZENG.

Witnesses:

WHARTON STOCKTON MCILVAINE,

MARY AGNES M'GINTY.