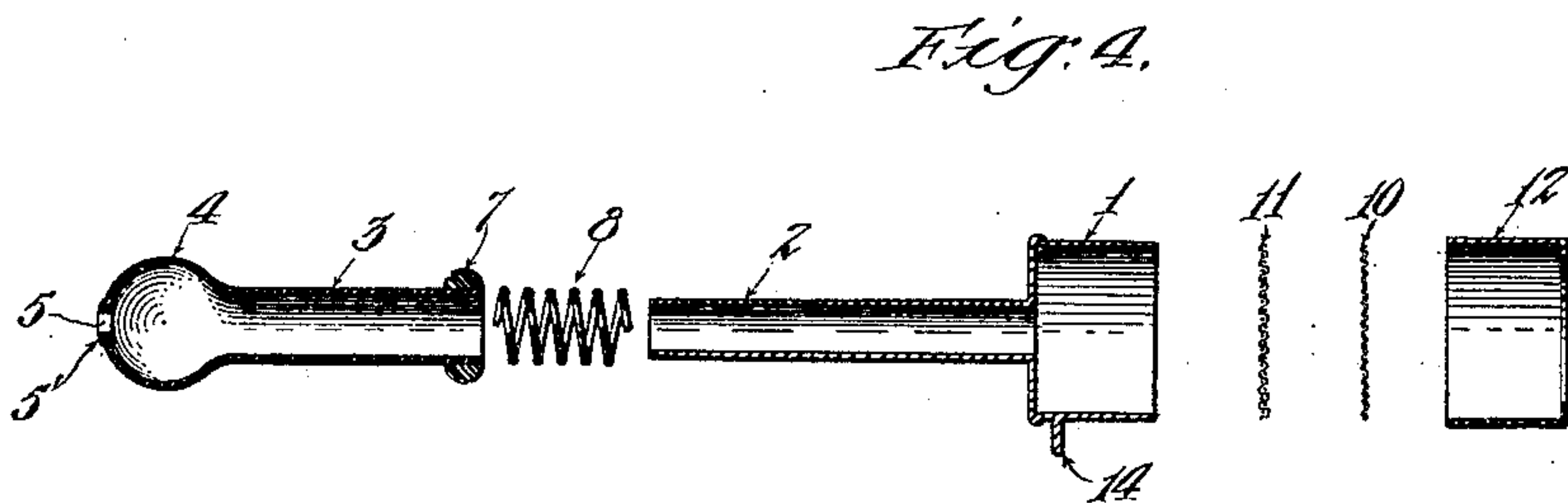
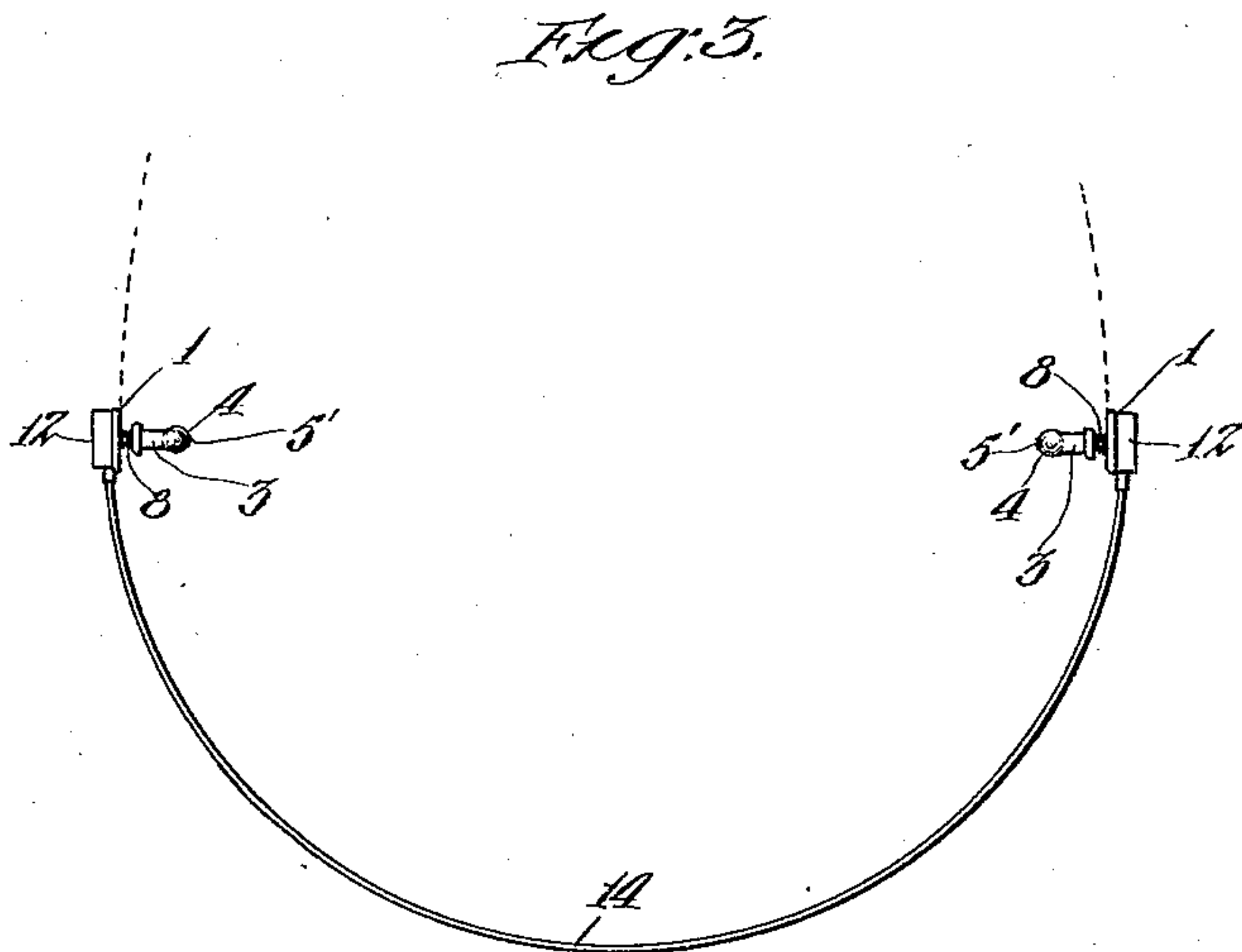
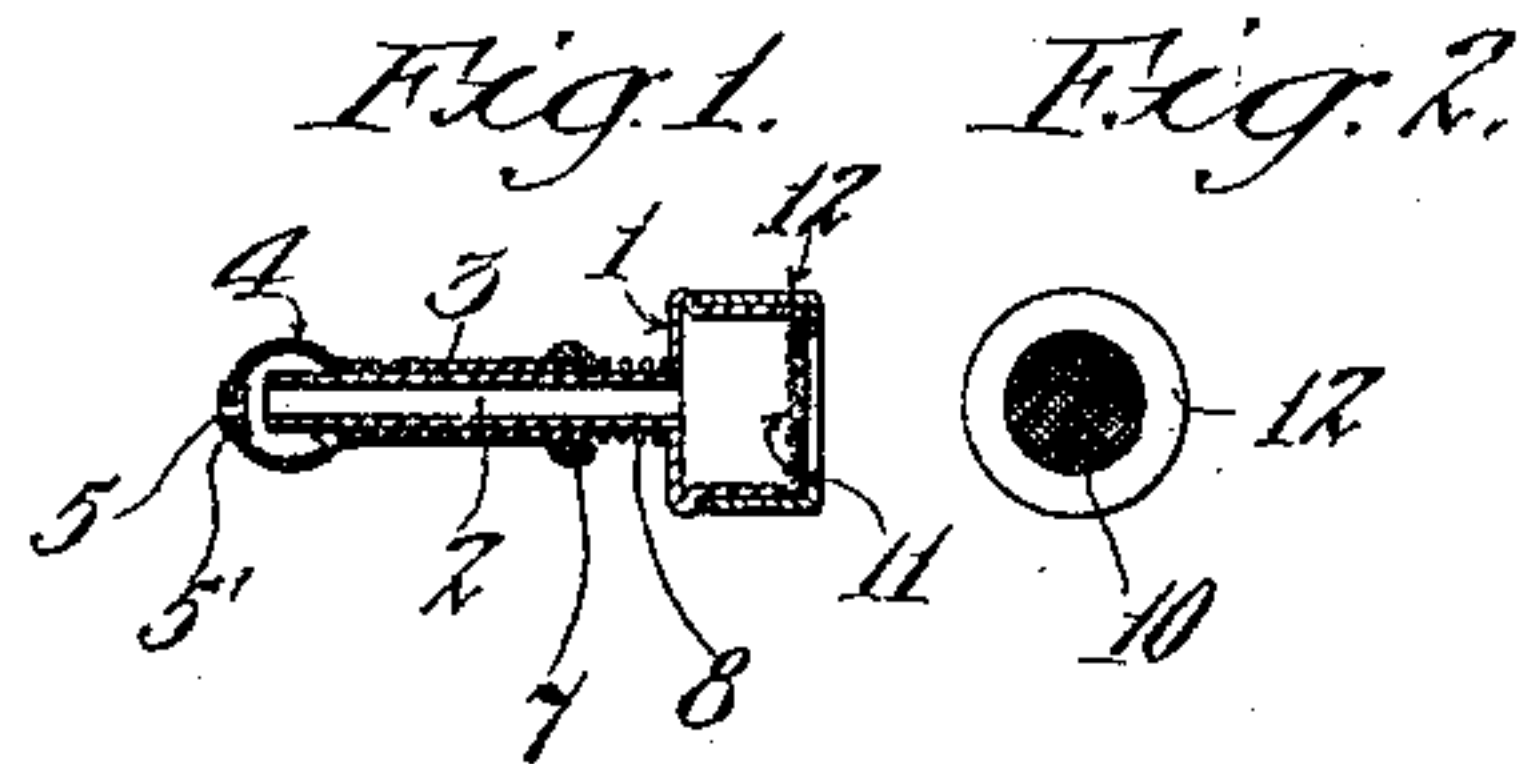


J. LOPIZICH.
 EAR PLUG FOR BATHERS.
 APPLICATION FILED MAR. 22, 1909.

955,276.

Patented Apr. 19, 1910.



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UNITED STATES PATENT OFFICE.

JOHN LOPIZICH, OF LOS ANGELES, CALIFORNIA.

EAR-PLUG FOR BATHERS.

955,276.

Specification of Letters Patent.

Patented Apr. 19, 1916

Application filed March 22, 1909. Serial No. 485,129.

To all whom it may concern:

Be it known that I, JOHN LOPIZICH, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Ear-Plug for Bathers, of which the following is a specification.

This invention relates to a plug or device for use by bathers, the plug to be inserted in the ear to exclude water while the person is bathing.

The main object of the present invention is to provide a device for this purpose which will not interfere with the hearing of the person using it.

Another object of the invention is to provide a device for this purpose of simple and cheap construction.

A further object of the invention is to provide means for retaining the ear plug in position.

The accompanying drawings illustrate the invention.

Figure 1 is a longitudinal section of the plug. Fig. 2 is an end elevation thereof. Fig. 3 is a plan of the complete device embodying two plugs and their supporting means. Fig. 4 is an enlarged sectional view of the several parts of the plug, detached or separated.

The device comprises a box 1 provided with an inwardly extending tube 2 having means for securing the same within the ear passage. For this purpose a sleeve 3 may be mounted to slide on the outside of the tube and provided with a bulb or enlargement 4 at its outer end, said enlargement having an orifice 5 in line with the bore of tube 2. Said sleeve 3 is preferably of soft rubber, the bulb 4 being of stiffer rubber and being provided with an eyelet 5' around the orifice 5. At the inner end of the sleeve 3 it is provided with an annular flange or enlargement 7 engaged by a helical spring 8 which is coiled around the inner end of the tube 2 and engages with the wall of box 1 to elastically hold the sliding tube 2 in position. Box 1 is provided at its outer end with a waterproof diaphragm 10 of silk, or other suitable material, supported by a foraminous screen 11, for example, of wire gauze, said parts being held in position by a cap 12 sliding on the outside of box 1 and holding the silk against the wire gauze and the wire gauze against the outer edge of the box. The silk is therefore directly in contact with the wire

gauze, the two forming essentially a single diaphragm, the wire gauze providing for mechanical support, and the silk providing the waterproof quality.

The device above described is used as follows: The sliding member or tube 3 is inserted within the cavity of the ear so that the enlarged or bulb portion 4 enters into the cavity or passage to close the passage. At this time the inner wall of the box 1 will rest against the outer ear, the spring 8 holding the parts in position. When the device is so placed it is not possible for the water to enter the ear, as the silk diaphragm prevents the passage of any water, but sound waves are transmitted practically unimpeded through the silk and through the box 1, tube 2 and orifice 5 to the ear passage so that the device does not detract from the person's ability to hear while he is using it.

The devices are preferably used in pairs, two devices being connected by a connecting band or wire 14, as shown in Fig. 3, which is elastic so as to retain the two in position within the ear. The connecting device 14 extends laterally from each box 1 and is formed as a bow or semi-circular arch.

What I claim is:

1. An ear plug comprising a tubular member having a waterproof diaphragm for preventing passage of water, but permitting transmission of sound waves, a tube of elastic material connected with said tubular member and having a perforated enlargement at its outer end adapted to be inserted in the ear passage, and means for holding said enlargement within the ear passage.

2. An ear plug for bathers' use comprising a box member having an opening at one end provided with a waterproof diaphragm, a tubular extension from said box member, a rubber tube member slidably mounted on said tubular extension and having an enlargement at its end, and means elastically connecting said rubber tube with the box.

3. An ear plug for bathers' use comprising a box member having an opening at one end provided with a waterproof diaphragm, a wire gauze screen within said diaphragm, a cap member sliding over the box member and holding the diaphragm in place, said box member having a tubular extension, a sleeve of soft rubber mounted to slide on the outside of the tubular extension and provided with a perforated bulb at its outer end, and a helical spring coiled around said

tubular extension of the box and engaging the box and the sleeve to hold said sleeve in position.

4. An ear plug comprising a tubular member having a waterproof diaphragm for preventing passage of water, a foraminous screen in direct contact with the waterproof diaphragm, but permitting transmission of sound waves, a tube of elastic material connected with said tubular member and having a perforated enlargement at its outer

end, adapted to be inserted in the ear passage, and means for holding said enlargement within the ear passage.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 15th day of March, 1909.

JOHN LOPIZICH.

In presence of—

ARTHUR P. KNIGHT,
FRANK L. A. GRAHAM.