May 19, 1931. L. R. ENGLAND 1,805,471

EAR SUCTION CUP

Filed Aug. 15, 1929

Fig. 1.

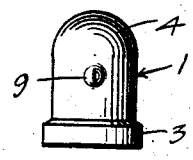


Fig. 2.

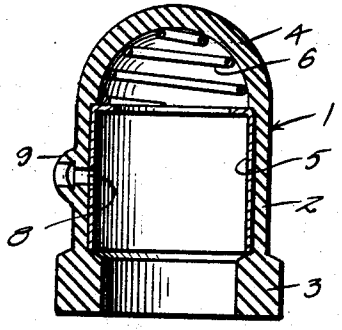
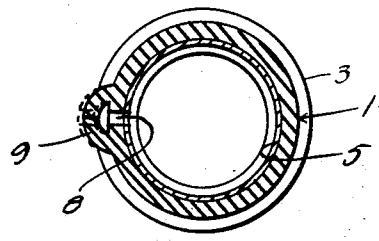


Fig. 3.



Inventor

L. R. England

By Watson E. Coleman

Attorney

Patented May 19, 1931 1,805,471

UNITED STATES PATENT OFFICE

LEE R. ENGLAND, OF CARTER, OKLAHOMA

EAR SUCTION CUP

Application filed August 15, 1929. Serial No. 386,017.

This invention relates to surgical devices and pertains particularly to a device designed primarily for applying suction to the ear.

In certain forms of ear trouble it is desirable that suction be applied to the drum to prevent the exterior pressure thereon from pressing the same inwardly. This operation is desirable where infection of the Eustachian tube has caused a closing of the same. By the use of the present device the drum of the ear may be vibrated and particularly drawn outwardly to overcome the tendency to sink in due to the outside pressure and at the same time break away any adhesions that may be formed in the tube or upon the side of the drum.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming a part of the present invention, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawings but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:—

Figure 1 is a view in side elevation of the ear suction cup embodying the present invention.

Figure 2 is a view in longitudinal section of the same.

Figure 3 is a view in transverse section taken through the valve upon the wall thereof.

Referring more particularly to the drawings, the numeral 1 indicates generally the improved ear suction cup embodying the present invention. This cup is formed of rubber and is of circular cross section, as shown, the wall 2 thereof being of generally cylindrical formation and having one end edge provided with the enlarged rim 3 which projects slightly and the same distance beyond the inner and outer surfaces.

At the opposite end of the portion 2 the cup is closed by the substantially semispherical head 4, the wall of which is slightly heavier than the wall 2 of the body proper.

Placed within the portion 2 of the cup is a metal liner 5 which is of cylindrical formation and rests at one end upon the inner part of the rim 3 and extends to the point where the top or head 4 begins, as shown.

Housed within the head 4 is a conical shaped spring 6, the lower portion of which may be suitably attached either in the wall of the head or to the adjacent edge of the metal liner, the latter construction being here shown and indicated by the numeral 7.

The wall portion 2 of the cup is provided with the passage 8 and upon the outer face there is formed a valve 9 of any suitable type, the valve here shown being in the form of a split sphere which may be formed integral with the cup body and which may be opened for the admission of air to the cup by compressing the same at opposite ends of the split so that the edges will be buckled and forced apart.

In the use of the present cup the same is placed over the ear with the broad soft rubber rim 3 resting against the head. Pressure is then applied to the spring pressed wall 4 to force the same inwardly after which this wall is released and in its outward movement acts to create a partial vacuum in the cup so that a pull is exerted upon the drum of the ear.

While I have shown and described a valve which will prevent the passage of air only in one direction it will, of course, be understood that I do not wish to be limited in any manner to this type of valve for other types of valves may be employed for controlling the passage of air in either direction when the cup is to be used for vibrating the ear drum.

Having thus described my invention, what I claim is:—

1. A suction cup, comprising a substantially cylindrical hollow resilient body, a resilient dome-like head closing one end of the body, a relatively broad soft rim surrounding the edge of the body at the other end thereof, a metal reinforcing liner within the cylindrical portion of the body, and resilient means supporting the dome-like end thereof to normally force the same outwardly.

2. A suction cup, comprising a substantially cylindrical hollow resilient body, a resilient dome-like head closing one end of the body, a relatively broad soft rim surrounding the edge of the body at the other end thereof, a metal reinforcing liner within the cylindrical portion of the body, resilient means supporting the dome-like end thereof to normally force the same outwardly, and a valve opening through the wall of the body.

3. A suction cup of the character described, comprising a molded rubber body having a cylindrical portion open at one end and having the edge of said open end of materially greater thickness than the wall of the body, a dome shaped wall closing the other end of the body and of slightly greater thickness than the same, said body having a valve in the wall thereof and comprising an integral hollow enlargement of the wall having a slit therein designed to be opened by compression of the enlargement from points adjacent the ends of the slit, said hollow enlargement communicating with the interior of the body through an adjacent aperture in the wall of the latter, a rigid reinforcing element within the body, and a spring element interposed between said reinforcing element and the inner surface of said dome shaped end wall and normally tending to force the same outwardly.

In testimony whereof I hereunto affix my signature.

LEE R. ENGLAND.