A. O. KUHN.

ASEPTIC APPLIANCE.

APPLICATION FILED FEB. 15, 1916. RENEWED MAR. 9, 1920.

1,351,917. Patented Sept. 7, 1920.

Fig. 1.

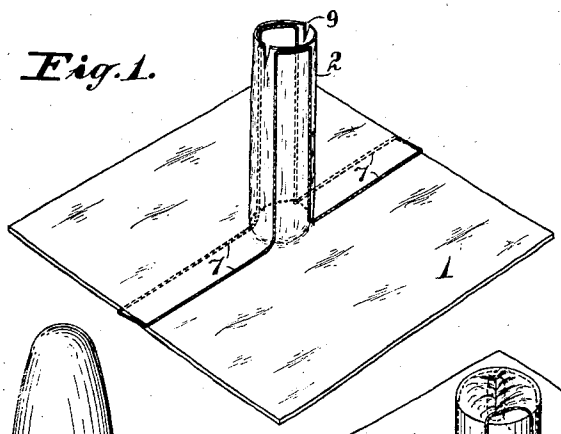
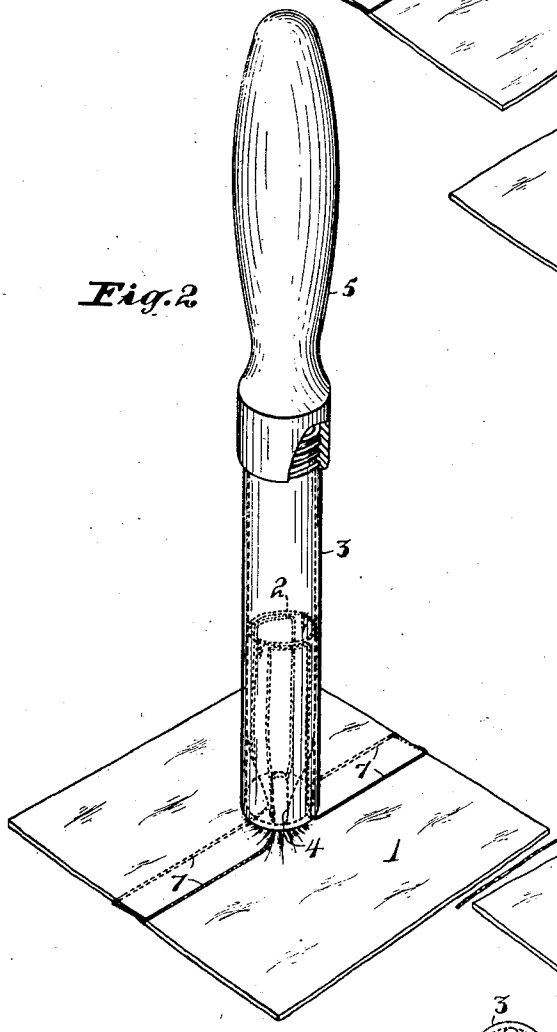


Fig. 2.



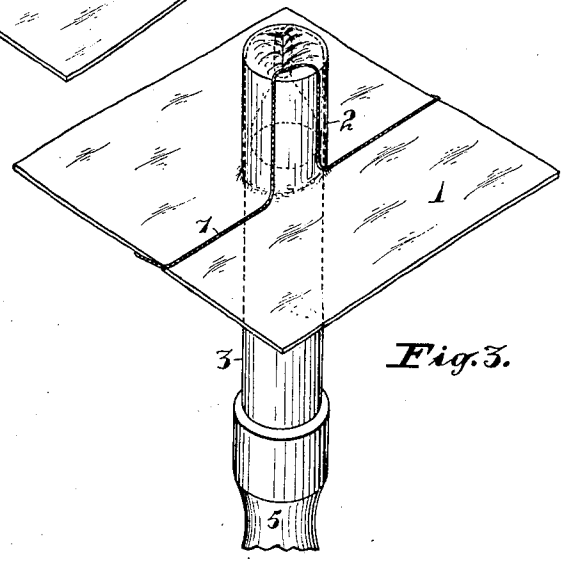


Fig. 3.

Fig. 5.

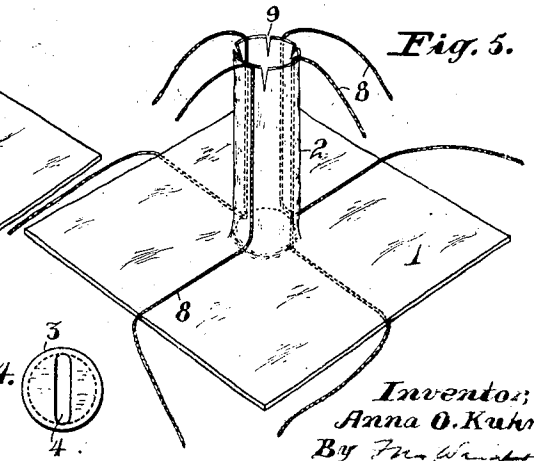


Fig. 4.

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UNITED STATES PATENT OFFICE.

ANNA O. KUHN, OF SAN FRANCISCO, CALIFORNIA.

ASEPTIC APPLIANCE.

1,351,917. Specification of Letters Patent. Patented Sept. 7, 1920.

Application filed February 15, 1916, Serial No. 78,388. Renewed March 9, 1920. Serial No. 364,520.

To all whom it may concern:

Be it known that I, ANNA O. KUHN, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Aseptic Appliances, of which the following is a specification.

My invention relates to improvements in aseptic appliances which have for their object means for obtaining access to the inner portions of the human body by the passages leading thereto and at the same time avoiding the transference of germs to said interior parts from the exterior of the body or to upper parts of said passages from lower parts thereof. The objects of these improvements are to facilitate the manipulation of the appliance, and prevent tearing and unnecessary stretching thereof, and also to render the appliance more effective for the purpose intended.

In the accompanying drawing, Figure 1 is a perspective view of a bacteria shield; Fig. 2 is a similar view of said shield with a pusher tube in position; Fig. 3 is a similar view with the tube pushed through the shield; Fig. 4 is an enlarged perspective view of the open end of the pusher tube; and Fig. 5 is a similar view of a modified form of bacteria shield.

Referring to the drawing, 1 indicates a sheet of soft rubber or other suitable material of size sufficient to cover the parts of the body adjacent to the passage and having a hole therethrough. The sheet is extended around said hole and reduced in thickness to form a tube 2 of thin soft rubber or said other material of size sufficient to line the passage, and either open or closed at the other end as may be desired. 3 indicates a tube of rigid, preferably transparent, material, as glass, one end of which is closed except for a narrow elongated opening 4, the other end being removably attached to a handle 5.

Before using, the apparatus is sterilized, the tube 2 is drawn through the narrow opening 4 in the end of the tube 3 and the whole apparatus is placed in a sterile covering.

In use, the sheet 1 is placed in contact with the exterior parts which it is intended to cover, and the glass pusher tube 3 is pushed inward into the passage. Thereby the tube 2 is unfolded and inverted, passing through the transverse opening 4, so that what was the inner wall of the tube 2 now contacts with the wall of the passage. The pusher tube 3 is then withdrawn or not, as desired. The passage is now lined with an aseptic lining which extends on the outside over the adjacenet parts.

The device as above described, except that the tube 2 and sheet 1 are now made in one piece, forms the subject matter of United States Letters Patent, granted to me August 29, 1916, No. 1,196,250.

In my present invention I prevent the tube 2 from stretching longitudinally, although permitting it to stretch laterally. This I do by embedding in, or securing to, the wall of the tube in a longitudinal direction of the tube a non-elastic thread or threads 7. Moreover, to strengthen the joint between the tube and the sheet, I also secure the thread to, or embed it in, the sheet 1.

In the form of the invention shown in Fig. 1, the thread does not extend beyond the free end of the tube, but on arriving at the end of the tube it is bent at right angles and extends in a circumferential direction, and is then again bent at right angles and extends in a direction reverse to its former direction, and the other end of the thread is bent in like manner at the border of the sheet. If the thread is cemented to one side of the tube or sheet, as shown in the drawing, then, on arriving at the free end of the tube, it is bent over the edge of the tube or sheet and proceeds in the reverse direction on the other side thereof.

In the modification of the invention shown in Fig. 5, there are used individual threads 8 extending some distance beyond the free end of the tube and the free edge of the sheet.

A further improvement consists in forming the free end of the tube 2 with a number of slits or fissures 9 opening from said end and extending longitudinally therein.

By preventing the tube stretching longitudinally, germs are less liable to be transferred from an exterior to an interior portion of a passage; moreover, for this reason and because of the slits or fissures 9, the end of the tube is more easily pulled out through the opening 4.

I claim:—

1. A device of the character described comprising a sheet of flexible material hav-

ing a hole therethrough and a rubber tube extending from the sheet around the hole and having threads secured thereto lengthwise of the tube.

2. A device of the character described comprising a sheet of flexible material having a hole therethrough and a rubber tube extending from the sheet around the hole and having threads embedded therein lengthwise of the tube.

3. A device of the character described comprising a sheet of flexible material having a hole therethrough and a rubber tube extending from the sheet around the hole and having threads secured thereto lengthwise of the tube and also to the sheet.

4. A device of the character described comprising a sheet of flexible material having a hole therethrough and a rubber tube extending from the sheet around the hole and having threads secured thereto lengthwise of the tube and having slits or fissures in its free end.

5. A device of the character described comprising a sheet of flexible material having a hole therethrough and a rubber tube extending from the sheet around the hole and having a thread secured thereto lengthwise of the tube and also to the sheet, and having an end extending beyond the tube.

6. A device of the character described comprising a sheet of flexible material having a hole therethrough and a rubber tube extending from the sheet around the hole and having a thread secured thereto lengthwise of the tube and also to the sheet, and having an end extending beyond the sheet.

7. A device of the character described comprising a sheet of flexible material having a hole therethrough and a rubber tube extending from the sheet around the hole and having a thread secured thereto lengthwise of the tube and also to the sheet, and having ends extending beyond the tube and sheet.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ANNA O. KUHN.

Witnesses:
FRANCIS M. WRIGHT,
D. B. RICHARDS.