Dec. 15, 1942. H. COBURG 2,305,289

SURGICAL APPLIANCE

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Fig.1

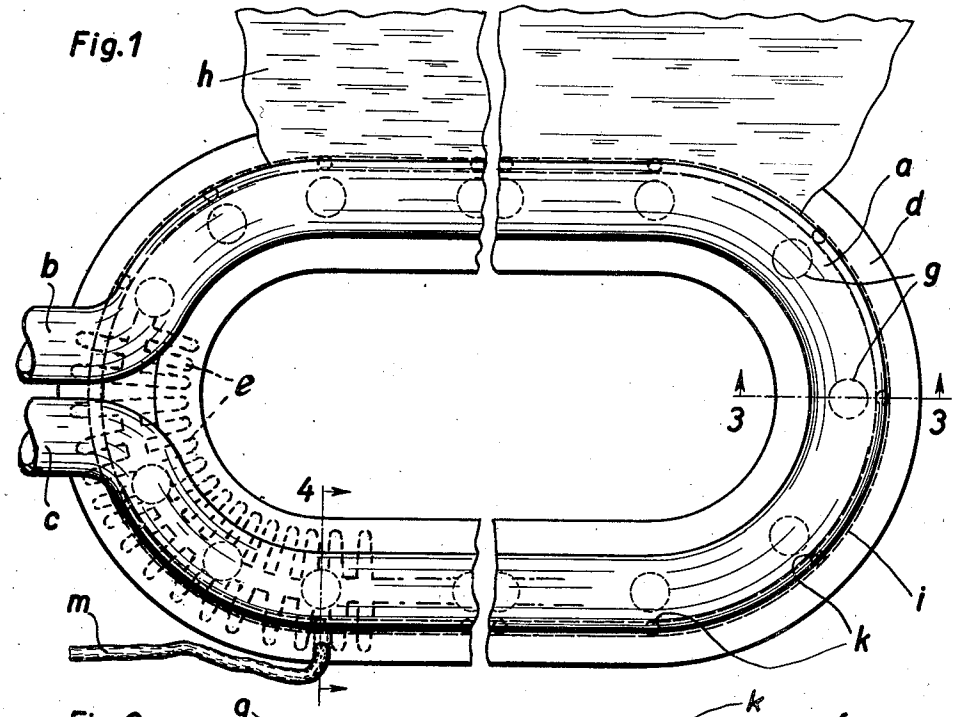
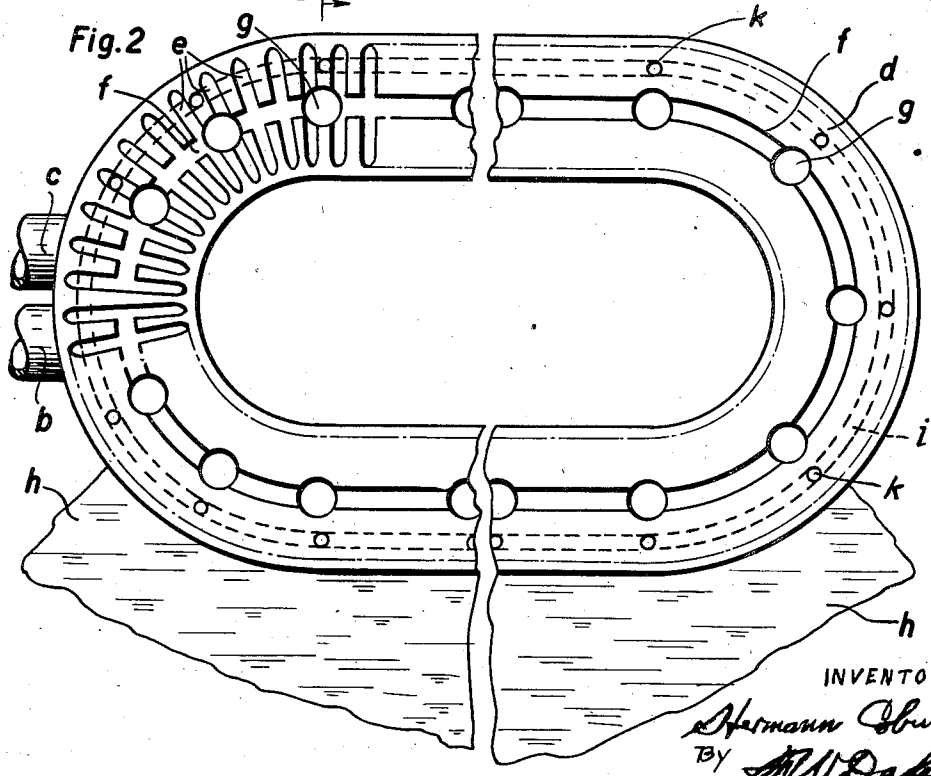


Fig.2



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SURGICAL APPLIANCE

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Fig. 3

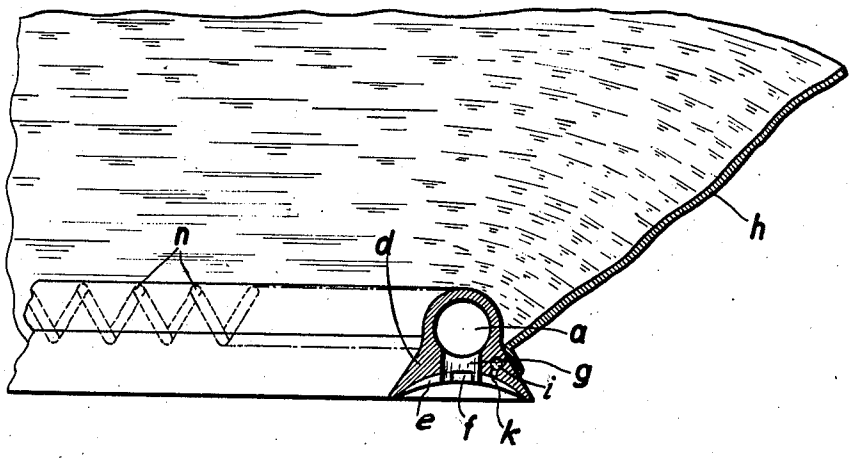


Fig. 4

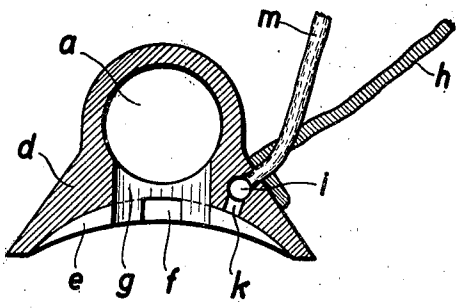
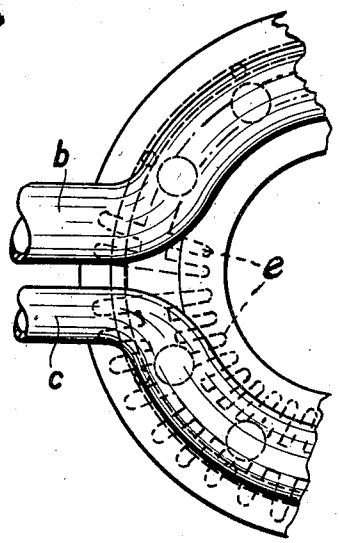


Fig. 5



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UNITED STATES PATENT OFFICE

2,305,289

SURGICAL APPLIANCE

Hermann Coburg, Delmenhorst, Germany; vested in the Alien Property Custodian

Application April 12, 1940, Serial No. 329,360
In Germany June 17, 1939

2 Claims. (Cl. 128—132)

My invention relates to improvements in surgical appliances, and more particularly in appliances comprising an annular sheet of flexible material such as rubber adapted to be placed on a portion of the human body around an operative field to insulate the same from the surrounding portions of the body, the object being to prevent portions of the body which may be contaminated from getting into contact with the field of operation, and also to prevent the contents of an opened cavity of the body from contaminating other portions of the body. The object of the improvements is to provide an appliance of this type which may be safely and tightly attached to the body so that it is not displaced in the course of the operation, and that it safely prevents the access of liquid to the surrounding parts of the body. With this object in view my invention consists in providing the said annular sheet around its inner margin with a portion which is adapted to adhere closely to the body. In the preferred embodiment of the invention this adhesive portion consists of a suction base disposed all around the inner margin of the sheet in position for being placed on the body around the operative field, means being provided for producing a vacuum between the said suction base and the body by which the suction base tightly engages the body.

For the purpose of explaining the invention an example embodying the same has been shown in the accompanying drawings in which the same letters of reference have been used in all the views to indicate corresponding parts. In the said drawings

Fig. 1 is a fragmentary top plan view of the appliance with the flexible sheet partly broken away,

Fig. 2 is a similar bottom view of the appliance,

Fig. 3 is a sectional elevation on an enlarged scale taken on the line 3—3 of Fig. 1,

Fig. 4 is a sectional elevation taken on the line 4—4 of Fig. 1, and

Fig. 5 is a fragmentary top plan view showing a modification.

The appliance may be used for making various operations such as echinococcus cysts, ovarian cysts, well exposed abscesses in the peritoneal cavity, and various operations on intestines and stomach. But in the form shown in the figures the appliance is particularly suitable for Caesarian sections, and I shall describe the method of using the appliance in connection with this operation.

Referring now to the drawings, the appliance comprises a flexible tube *a* made from soft rubber and bent into annular or oblong shape, the ends *b* and *c* of the said tube being adapted to be connected to a suction apparatus, or one to a suction apparatus and the other to a supply of a suitable medicinal preparation. At its bottom side the said tube is made integral with an annular suction base *d* consisting of two annular flaps extending respectively inwardly and outwardly and downwardly from the tube *a*, the said flaps being gradually reduced in thickness from the tube outwardly, and, preferably, ending in a thin margin which readily adapts itself to the shape of the portion of the body to be operated upon. At its bottom side the said suction base is concave, and it is formed at its middle with a groove or channel *f* extending all around the suction base and the tube, and the said groove or channel communicates with the inner part of the tube *a* through suitably spaced holes *g*. At its bottom face the suction base is provided with transverse recesses *e* extending from the groove or channel *f* outwardly and towards the inner and outer margins of the base.

To the outer side wall of the suction base or pipe *a* a sheet *h* of flexible material such as soft rubber is tightly secured.

In the construction shown in Figs. 1 to 4 the intake ends *b* and *c* of the tube *a* are alike in cross-sectional area. But in some cases I prefer to make the said intake ends different in cross-sectional area, the intake end of small cross-sectional area being adapted to be connected to a supply of a suitable medicinal preparation, such for example as an anaesthetic for locally anaesthetizing the operative field. The fragmentary plan view shown in Fig. 5 illustrates this modification.

As is best shown in Fig. 4, the suction base is formed with a channel *i* of comparatively small cross-sectional area which opens downwardly through a series of small holes *k* disposed at suitable distances apart all around the base. The channel *i* has a supply of a suitable medicinal preparation through a thin hose *m*.

Preferably means are provided for preventing collapsing of the tube *a*, and as shown such means consist of a coiled wire *n* embedded in the wall of the tube.

The appliance is used as follows:

If it is desired for example, to exudate a cavity of the body, the suction base is placed on the field of operation, and a suction apparatus connected to the tube *a* is operated for drawing the air from between the suction base and the field

of operation and through the tube *a*. Now the suction base tightly engages the operative field around the incision to be made, and the sheet of rubber *h* covers the operative field around the said cavity. If now liquid flows from the cavity, which liquid may be contaminated, it flows over the suction base *d*, the tube *a* and the sheet *h* without infecting the adjacent sterilized portions of the body.

In the Caesarian section the appliance is used as follows: After the abdominal cavity has been opened by a midline incision the appliance is passed in a folded condition into the abdomen. Now the suction device is started so that a vacuum is produced below the suction base by which the appliance is made tightly to engage the uterus. If now the uterus is opened the amniotic fluid, which may be contaminated, flows off over the tube *a* and the sheet *h* without infecting a sterile operative field.

Through one of the intake ends of the tube *a* an anaesthetic may be introduced for locally anaesthetizing the operative field, for which purpose the intake end of smaller cross-sectional area is connected to the supply of the anaesthetic, while the intake end of larger cross-sectional area is connected to the suction device.

In the construction shown in Fig. 4 the anaesthetic may be supplied through the channel *i*.

I claim:

1. In a surgical appliance, a flexible sheet having an opening adapted to bound a field of operation, a suction base around the inner margin of said opening, said base having a concave face and an opening adapted for connection with a suction apparatus, said base being formed at said face with a groove disposed longitudinally all around said base, and with transverse recesses extending from said groove outwardly and inwardly to points near the margins of said base.

2. In a surgical appliance, a flexible sheet having an opening adapted to bound a field of operation, a suction base around the inner margin of said opening, said base having a concave face and an opening adapted for connection with a suction apparatus, said base being formed at said face with a groove disposed longitudinally all around said base, and with transverse recesses of gradually reduced depth extending from said groove outwardly and inwardly to points near the margins of said base.

HERMANN COBURG.