Dec. 30, 1969 L. M. AUSTIN, JR 3,486,504

DEVICE FOR APPLYING DRESSING, MEDICATION AND SUCTION

Filed Nov. 20, 1967

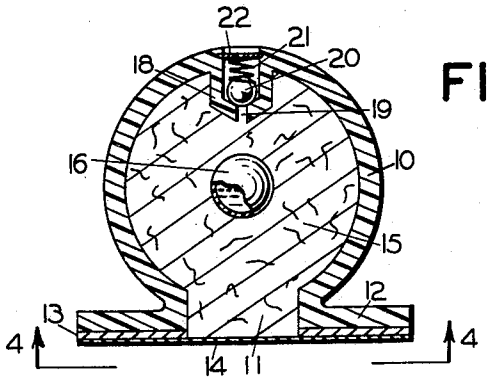


FIG. 1

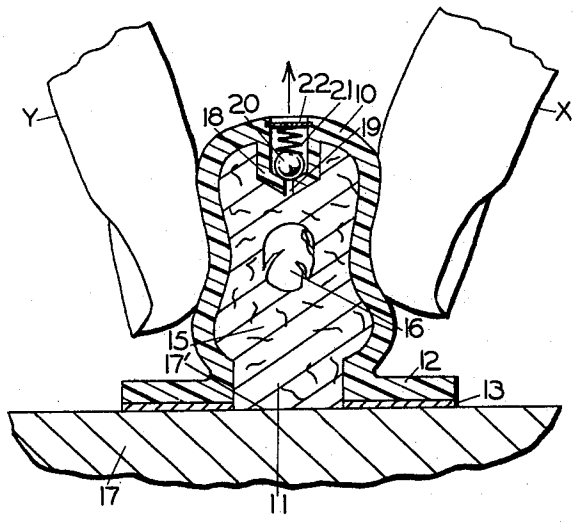


FIG. 2

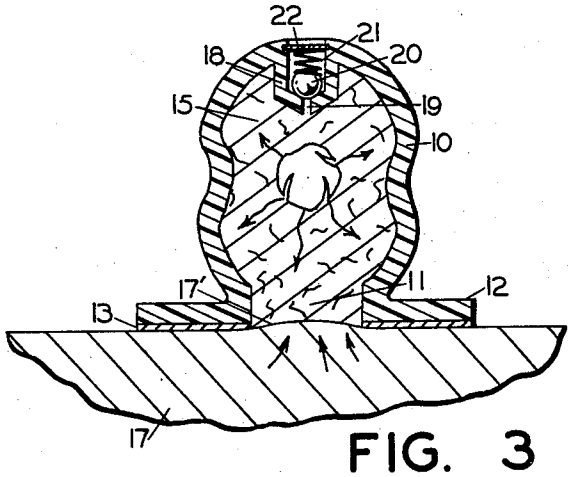
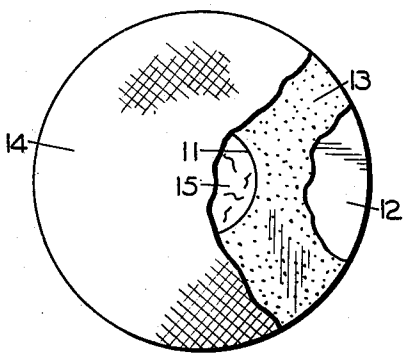


FIG. 3

FIG. 4



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3,486,504

DEVICE FOR APPLYING DRESSING, MEDICATION AND SUCTION

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U.S. Cl. 128—260 4 Claims

ABSTRACT OF THE DISCLOSURE

A resilient housing containing an absorbent dressing and having an open bottom portion, the housing being so arranged and constructed that, when it is partially squeezed with the bottom portion pressed against the skin about an infected area, the dressing will be held in contact with the infected area and a partial vacuum will be maintained within the housing to provide suction over such area.

BACKGROUND OF THE INVENTION

The use of suction means for removing impurities from the skin, and also the use of medicated bandages on infected areas for the purpose of withdrawing and absorbing the secretion from the infected area are known to be old. Ordinarily active suction is employed only for momentary periods. A device for this purpose is described in U.S. Patent No. 1,927,462, issued under date of Sept. 19, 1933. A device for applying continuing suction for a longer period in a somewhat different situation is described in U.S. Patent No. 2,385,207, issued under date of Sept. 18, 1945.

Various absorbent dressings and medicated bandages, together with adhesive means for holding them in place over the infected area, are at present available on the market. U.S. Patent No. 3,157,178, issued under date of Nov. 17, 1964, describes a porous dressing held in place by pressure-sensitive tape.

The object of the present invention, however, is to serve both purposes simultaneously and continuously, that is to say, to retain an absorbent dressing in place and at the same time to facilitate the drawing out of the discharge from the infected area into the dressing by maintaining a definite and continuing suction.

While medicated bandages of one type or another are in common use, an additional object of this invention is to provide a bandage or dressing with suitable medication, the penetration of which into the bandage will not take place until such time as the bandage is actually secured in position for use.

SUMMARY OF THE INVENTION

In the device of this invention the absorbent bandage or dressing is contained in a resilient, flexible, bulb-like housing. The housing is provided with a bottom opening and with an annular flange surrounding the bottom opening so arranged as to be adhesively attached to the skin around the infected area. In this way the housing holds the dressing in contact with the infected area.

The resilient housing, furthermore, is so constructed that, when part of the air within the housing is discharged, with the squeezing of the wall of the housing, and the bottom flange is firmly attached to the skin surface, the tendency of the resilient housing to resume its normal shape will result in a partial vacuum being set up and maintained in the housing as long as the seal between the bottom flange and the skin to which it is attached is not interrupted.

While the medication may be applied to the dressing in advance, the preferred manner of dispensing the medication in this invention is to have the medication sealed in a very thin and fragile capsule, located within the dressing and so designed as to be broken by the squeezing of the housing wall to exhaust part of the air from the housing, the broken capsule then dispensing its contents throughout the dressing.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 is a sectional elevation of the entire device taken approximately through the center of the same, drawn to a somewhat enlarged scale, and showing a medication-containing capsule located in the dressing, the capsule being shown partially broken away for clarity;

FIG. 2 is a corresponding sectional elevation, drawn to the same scale as FIG. 1, showing the device in place on the skin with the housing manually being squeezed and thereby causing a portion of the air to be exhausted from the housing, the capsule containing the medication being broken open as a result of the squeezing pressure on the housing;

FIG. 3 is a cross sectional elevation illustrating the device in a subsequent stage, with the squeezing pressure removed but with the device remaining in place on the skin and with the partial vacuum being retained as a result of the tendency of the resilient housing to return fully to the normal shape of FIG. 1, the bottom flange forming a seal with the skin surrounding the infected area; and

FIG. 4 is a bottom plan view taken of the device before use, and thus taken on the line indicated at 4—4 of FIG. 1, with portions of a temporary gauze covering of the bottom shown broken away for clarity.

In FIGS. 1, 2 and 3 the resilient housing is indicated in general by the reference **10**, the housing being formed of resilient rubber, plastic or other similar suitable material and preferably having a bulb-like shape substantially as shown in FIG. 1. The bottom of the housing is formed with an open portion **11**, which open portion is surrounded by an annular integral flange **12**. The open portion **11** is intended to be placed over the infected skin area, as later mentioned.

The interior of the housing **10** is filled with a suitable dressing **15**, for example, absorbent cotton. Preferably, a capsule **16** containing an antibiotic or other medication is positioned in the dressing **15**. This capsule **16** is made of gelatin or very thin plastic, capable of containing the liquid medication, but with such a thin wall and so fragile that it is readily broken when external squeezing pressure is imposed on the housing.

Also preferably, but not necessarily, the housing **10** is formed with an inwardly-extending recess **18** for holding a simple ball check valve, the recess **18** having a bottom air channel **19** forming the valve seat for the spring-pressed ball **20**. The spring **21**, which engages the ball **20**, is held under compression between the ball and a washer **22**, the washer **22** being set into a groove in the surrounding wall of the recess **18**.

The flange **12** surrounding the open portion **11** of the housing has a coating of suitable adhesive **13** on its bottom face, and prior to being used, the entire bottom portion of the device is covered with a thin protective sheet **14** of gauze or other suitable and easily removable material.

When the device is to be used the protective covering **14** is removed from the bottom and the housing shell is so positioned that the bottom opening will be over the infected area **17'** of the skin **17** (FIG. 2) with the flange **12** engaging the skin around the infected area. If the device is provided with the air outlet valve as shown in the drawings, then the flange **12** is first pressed firmly against the skin to enable the adhesive on the flange to form a holding seal between the flange and the skin, and the sub-

sequent squeezing of the housing between the thumb X and forefinger Y, as shown in FIG. 2, causes some of the air to be exhausted from the housing through the one-way check valve. This squeezing pressure, in addition to causing some of the air to be exhausted from the housing, also causes the fragile capsule **16** to be broken and the medication from the capsule to be dispensed through the dressing **15**.

In the event the housing is not provided with the exhaust air valve the squeezing of the housing takes place before the flange **12** is secured to the skin surface, the flange than being pressed against the skin while the housing is still held compressed.

In either case, as long as the tight seal between the flange **12** and the skin surrounding the infected area is maintained, the tendency of the resilient housing to return to its full normal shape and the resulting partial vacuum set up in the housing will cause suction to be exerted over the infected area while the medicated and absorbent dressing is held in contact with the area. Of course if it is preferred in a particular case to have no suction on the infected area then air is not exhausted from the housing. Nevertheless, the adhesion of the flange **12** to the skin maintains the housing in place and the dressing in contact with the infected area and protected from outside contamination.

The device is designed particularly for treatment of such skin infections as boils, carbuncles, etc.

I claim:

1. A device of the character described for treating a skin infection comprising a resilient bulb-like housing, absorbent dressing material substantially filling said housing, said housing having a bottom opening adapted to be placed over the infected skin area, a flange on said housing surrounding said opening, means on said flange adapted to form an adhesive seal between said flange and the skin surrounding the infected area, said housing so constructed that, when part of the air in said housing is discharged by squeezing pressure on said housing and said flange is sealed to the skin around said infected area, the tendency of said housing to resume its full normal shape when the squeezing pressure is withdrawn will cause a partial vacuum to be set up in said housing resulting in suction being applied to said infected area while said dressing material is maintained in contact with said area.

2. The device of claim **1** with the addition of a fragile capsule containing medicine positioned within said dressing material, said capsule being of such nature that the squeezing pressure on said housing to exhaust some of the air from said housing will cause said capsule to break and the capsule contents to be dispensed through said dressing material.

3. The device of claim **1** with said housing provided with an outlet check valve to enable air to be discharged from said housing when squeezing pressure is exerted on said housing after said housing is secured in place around the infected skin area.

4. The device of claim **3** with the addition of a fragile capsule of medicine positioned within said housing and dressing material and adapted to be broken by the application of squeezing pressure to said housing.

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L. W. TRAPP, Primary Examiner

U.S. Cl. X.R.

128—268, 276, 300