# United States Patent [19]

**Jones**

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[54] **METHOD AND APPARATUS FOR PACKAGING MEDICATED GAUZE PADS**


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**Related U.S. Application Data**

[63] Continuation of Ser. No. 886,995, Dec. 22, 1969, abandoned.

[52] **U.S. Cl.** ..... **53/21 FC**, 53/25, 53/127

[51] **Int. Cl.** ..... **B65b 55/14**

[58] **Field of Search** ..... 53/21, 25, 127, 21 FC; 128/156



[56] **References Cited**

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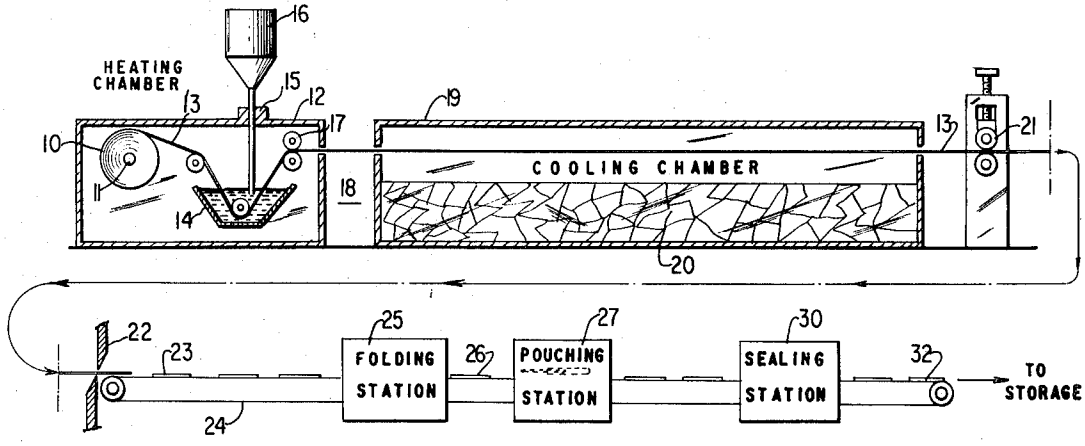
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[57] **ABSTRACT**

A supply roll of gauze or similar material in the form of a continuous web is enclosed within a heated chamber and passed through medication in viscous form so as to place it on the moving web within the heating chamber. The medication is distributed throughout the gauze so as to impregnate the gauze and the gauze web is then moved through a cooling chamber to solidify the medication. The medication impregnated web is then cut into sections of a predetermined length and each of the sections are folded. The folded section is then inserted into a flat package and sealed.


**8 Claims, 3 Drawing Figures**



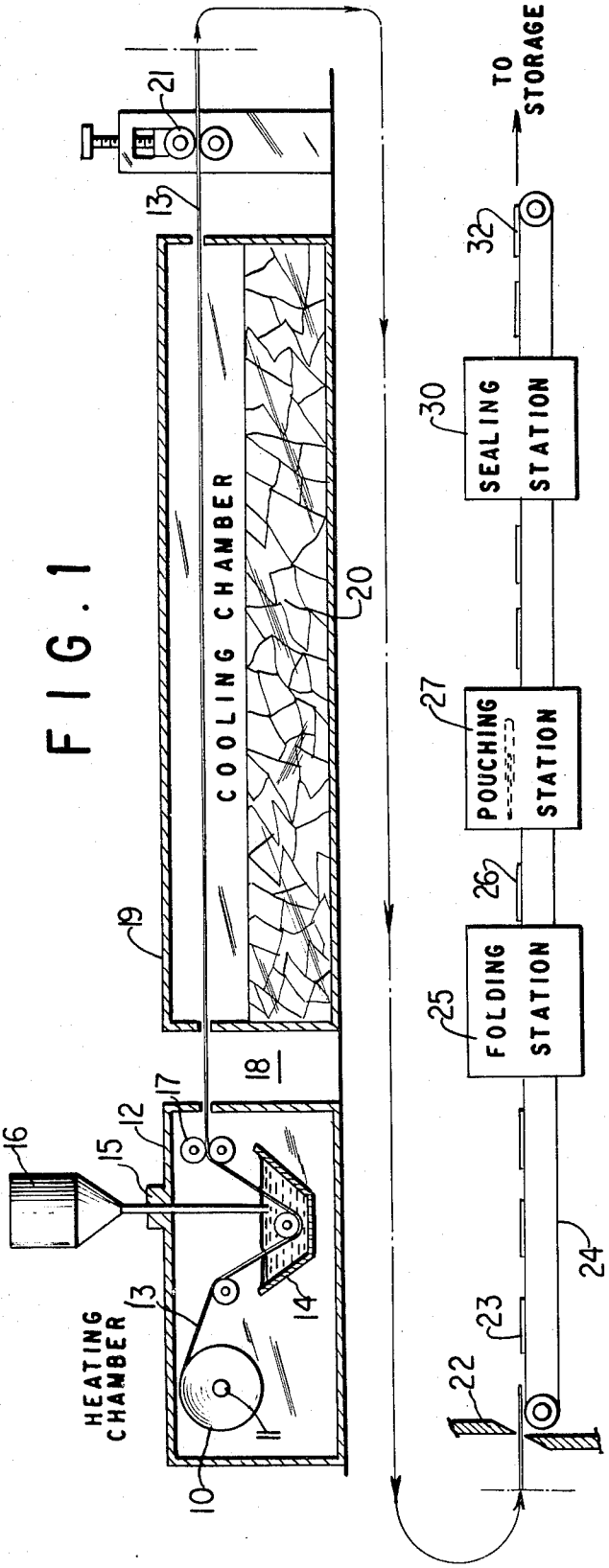



FIG. 1

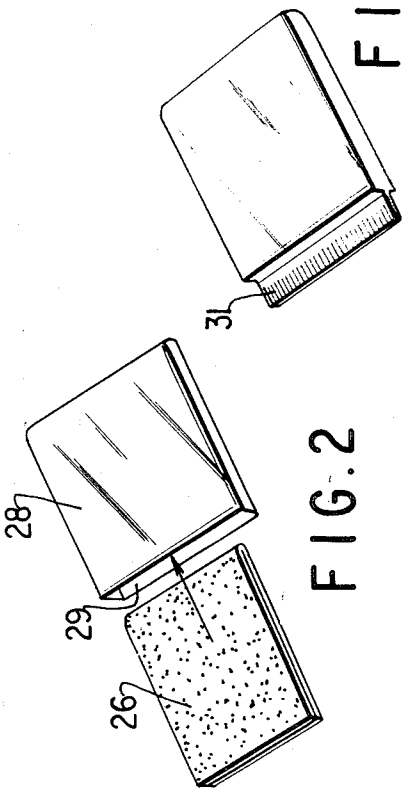



FIG. 2

FIG. 3

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# METHOD AND APPARATUS FOR PACKAGING MEDICATED GAUZE PADS

This is a continuation of application Ser. No. 886,995, filed Dec. 22, 1969, now abandoned.

A commonly used form of medical dressing comprises a gauze pad impregnated with a suitable medication or material. In order that such medicated pads can be stored and transported prior to actual use, the pads are generally sealed in a flat envelope-like package under sterile conditions. The packages generally comprise foil-lined laminated paper and may be rectangular in shape with three of the sides being sealed and the fourth side being open. After the pad has been inserted through the open side, the open side is then sealed.

In prior practice, the pad is inserted in the packet and the medication discharged into the packet after the gauze pad has been inserted therein. The packet is then subjected to heat so that the medication may become distributed throughout the gauze. During the heating, there has been delamination of the paper of the packet. Also, the medicant has not been distributed evenly.

One of the objects of the present invention is to provide an improved method and apparatus for packaging medicated gauze pads.

According to one aspect of the invention, a method of making a medicated pad package may comprise the steps of impregnating gauze with a medication in the viscous state. The impregnated gauze and medication is then passed between rolls which have been set a predetermined distance apart so as to deposit a uniform, known quantity on the gauze. The medication impregnated gauze is then placed in an envelope-like package which is subsequently sealed. The gauze may be in the form of a continuously moving web with a supply roll of the gauze and the impregnating of the gauze with a medication occurring within a heated chamber. The impregnated gauze is then immediately transferred to a cooling chamber to solidify the medication.

An apparatus for making a medicated pad package may comprise a heated chamber having means therein for impregnating the medication in a viscous state onto a gauze pad. The gauze may, for example, be passed through a bath of medicant, such as "furacin." Means which may be a cooling chamber is provided for solidifying the medication on the gauze. Sealing means are then employed to seal the gauze with the solidified medication into a relatively flat package.

Other objects, advantages and features of the present invention will be apparent from the accompanying description and drawings, which are merely exemplary.

In the drawings:

FIG. 1 is a schematic view showing the several components of the apparatus according to the present invention with the heating chamber and cooling chamber being shown in vertical sections;

FIG. 2 is an overall perspective view showing the insertion of the medicated pad into an unsealed package; and

FIG. 3 is an overall perspective view showing the seal package according to the present invention.

Proceeding next to the drawings wherein like reference symbols indicate the same parts throughout the various views, a specific embodiment of the present invention will be described in detail.



A sterile roll of gauze **10** is mounted upon a shaft **11** within a heating chamber **12** maintained at a temperature of 126°–130°F. or at the temperature necessary for the medicant involved. The gauze is delivered from the supply roll in the form of a continuous web **13** which may move at a speed of about **4** yards per minute.

The gauze web **13** is moved over rollers through an impregnating pan **14** into which a supply of the medication is discharged through a supply line **15** leading from a supply container **16**. The medication may be either in liquid or viscous form.

Instead of the impregnating pan **14**, the medication in a viscous form may be extruded upon the moving web.

As the web emerges from the impregnating pan, it passes between a pair of parallel closely spaced stainless steel impregnation bars **17** which cause the medication to be evenly distributed throughout the gauze. The bars **17** are spaced so that a uniform dosage of medication per unit area of gauze is obtained.

The gauze impregnated with medication is then quickly passed through a baffle area **18** so as to prevent condensation and then immediately moved into a cooling chamber **19** which is at a temperature of about −60° F. The cooling chamber may be of the type filled with dry ice at **20**. The cooling chamber solidifies the medication which has had a predetermined quantity impregnated throughout the gauze.

This results in an even distribution of the medication on the gauze with a predetermined dosage of medication per square inch. Also, upon using the bandage there is no tendency for the bandage to stick to itself to the point where it removes medication from one layer to the other since the medication is preserved in its original state. This is particularly desirable where sections of the gauze are cut and folded into pads. Further, no chemical changes or adulterations are made in the medication.

Upon emerging from the cooling chamber, the web **13** will pass through a standard pressure nip **21** and then through automatically operated knives **22** which will cut the continuous web into sections of a predetermined length. The sections indicated at **23** are carried along a continuous belt conveyor **24** to a folding station **25** where they may be folded by hand. The folded pads **26** are then conveyed to a pouching station **27** where they are inserted into flat envelope-like packages **28** having an open edge **29** with the other edges being sealed as shown in FIG. **2**. The package **28** with the folded gauze pad therein is then conveyed to a sealing station **30** where the edge **29** is sealed at **31**. The sealed packages **32** are then delivered to a storage station.

The folding station may be suitable automatic machinery or the folding may be accomplished by hand.

While the present invention may be employed with a great number of medications which are in liquid or viscous form and solidify upon cooling, the invention is particularly suitable to the use of Furacin, the trademark of Norwich Pharmacal Company for its 5-Nitro-2-furaldehyde-Semicarbazone. In previous methods Furacin was impregnated into the gauze in a particular spot and then melted to become uniformly distributed throughout the cloth. The melting occurred when the Furacin impregnated pads were subjected to heat treat-

ment in a wicking oven at approximately 150°F for about 1 hour. While the material would still be hot from the wicking oven, it would appear that the Furacin was evenly impregnated in the gauze pad. However, upon cooling, there occurred a definite separation of the blycols which form the Furacin base. Also, the paper became delaminated under heat.

With the present invention, Furacin is extruded onto a continuously moving gauze web having a width of three inches. The gauze web with Furacin thereon is then passed between the impregnator bars to evenly distribute Furacin throughout the gauze and to provide an accurate dosage of Furacin per unit area of the gauze web.

After the Furacin impregnated gauze web emerges from the cooling chamber, it is cut into 9-inch sections and each section is then folded twice by hand to result in a square gauze pad 3 inches along each side. The resulting pad is then packaged and sealed as described above.

In the case of Furacin, the dry gauze weighs 0.75 grams, and 5 grams of Furacin, or six times the weight of the dry cloth, is impregnated throughout the gauze. With the present invention, Furacin dressing may be extruded in a viscous state through a predetermined opening. The gauze serves as a carrying web and in order to keep the Furacin stable, it is immediately introduced into a cooling chamber wherein the Furacin becomes preset in this extruded state within the cloth carrier. This results in very precise dimensions and thickness and provides very precise amounts of medication per square inch of gauze. The Furacin is evenly distributed throughout the gauze pad on both surfaces at which point the Furacin is solidified so as to render it manageable and with a non-sticky smooth surface so that the impregnated gauze can be readily cut and folded and inserted into a package.

The present invention may also be employed with a number of different drugs or medicants in liquid or ointment form which solidify upon cooling. The invention could also be used with similar results on either hot or cold medication assuming that at the starting points there is either a hot liquid that subsequently solidifies or a cold medication which is already solidified, such as an ointment.

It will be understood that various details of construction and arrangement of parts may be made without departing from the spirit of the invention.

What is claimed is:

1. In a method of making a medicated pad package, the steps of applying medication in a viscous state to gauze in a single web, quickly cooling the medication and gauze by subjecting the medication and gauze to sub-zero temperature to solidify the medication in a homogenous condition on the gauge so as to place a predetermined amount per unit area of medication on said gauze, thereafter placing the gauze with medication applied thereto into an envelope-like package, and sealing the package.

2. In a method as claimed in claim 1 with said web of gauze being delivered from a supply roll, the supply roll and application of medication to the gauze being under heated conditions.

3. In a method as claimed in claim 1 with the step of applying being extrusion of the medication in viscous form onto the moving web of gauze.

4. In an apparatus for making a medicated pad package, the combination of means for placing a medication in a viscous state onto a single web of gauze, means for quickly solidifying a predetermined amount of the medication per unit area on the gauze at sub-zero temperature, and means for thereafter placing and sealing the gauze with the solidified medication into a relatively flat envelope-like package.

5. In an apparatus as claimed in claim 4 and including a pair of closely spaced parallel bars set a predetermined distance apart between which the gauze with the applied medication is passed so as to place a predetermined quantity of medication on each square inch thereof.

6. In a method as claimed in claim 1 wherein the medication is 5-Nitro-2-furaldehyde- Semicarbazone.

7. In an apparatus as claimed in claim 4 wherein the medication is 5-Nitro-2-furaldehyde-Semicarbazone.

8. In a method as claimed in claim 1 including the step of folding the impregnated web before placing into the envelope-like package.

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