

[72] Inventor **Theodore H. Stawski**
Union, N.Y.
 [21] Appl. No. **831,929**
 [22] Filed **June 10, 1969**
 [45] Patented **May 25, 1971**
 [73] Assignee **Becton, Dickinson and Company**
Rutherford, N.J.

[56] **References Cited**
UNITED STATES PATENTS
 2,451,382 10/1948 Davis..... 221/96
 3,022,651 10/1961 Gauld..... 206/56A
 3,002,651 10/1961 Gauld..... 206/56A4

Primary Examiner—David M. Bockenek
Attorney—Kane, Dalsimer, Kane, Sullivan and Kurucz

[54] **SWAB DISPENSER FOR PACKAGE THEREFOR**
6 Claims, 9 Drawing Figs.

[52] U.S. Cl..... 229/17,
 221/34, 206/56
 [51] Int. Cl..... B65d 5/72
 [50] Field of Search..... 229/17;
 206/56 (A4); 221/34, 96

ABSTRACT: A portable dispensing apparatus for dispensing a sterile unpackaged medical swab and a moisturizing charge of a liquid medium. A package member for storing the swab as one of a plurality of stacked swabs. The package, received and supported by the apparatus, having bottom supporting structure for the swabs and both a rear cutout to allow passage of a pivotal dispensing lever and a front exit to dispense, upon lever movement, the swab from the package and from an aligned dispensing slot in the apparatus.

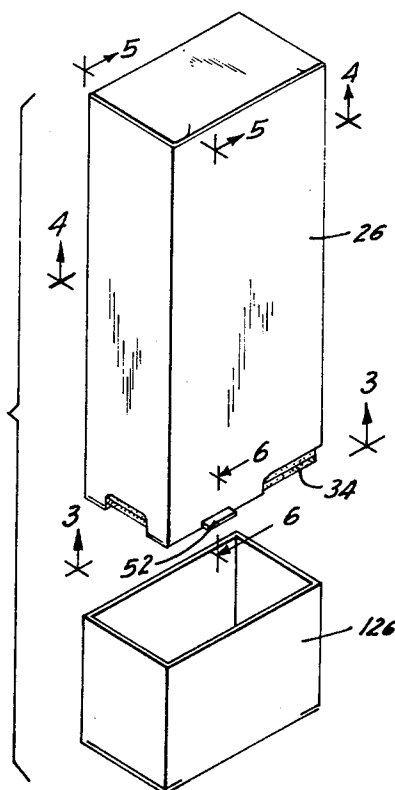


FIG. 1

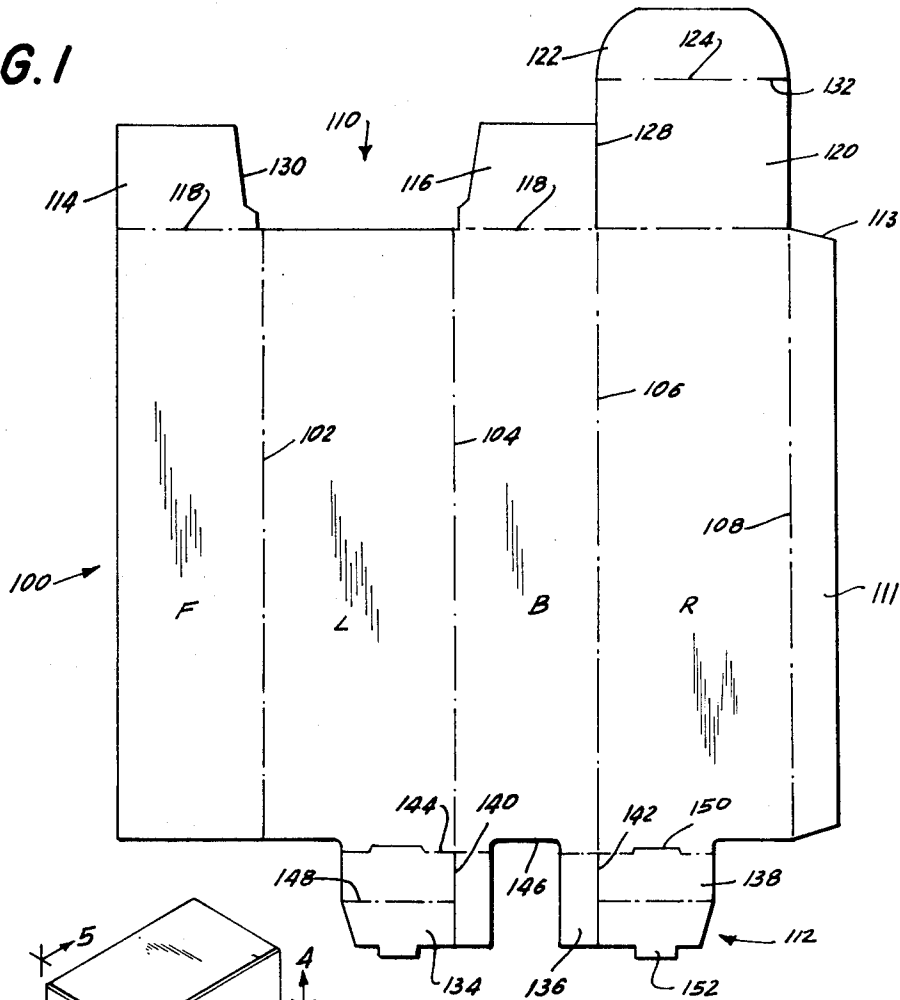
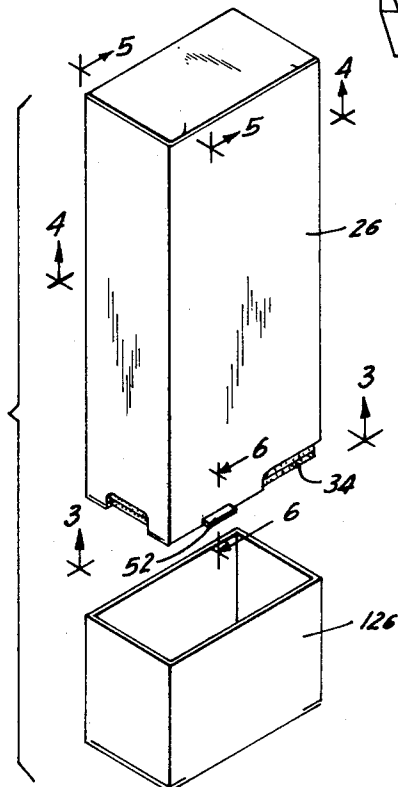


FIG. 2



INVENTOR
THEODORE H. STAWSKI

BY
Lane, Dabine, Lane, Sullivan & Smith
ATTORNEYS

FIG. 3

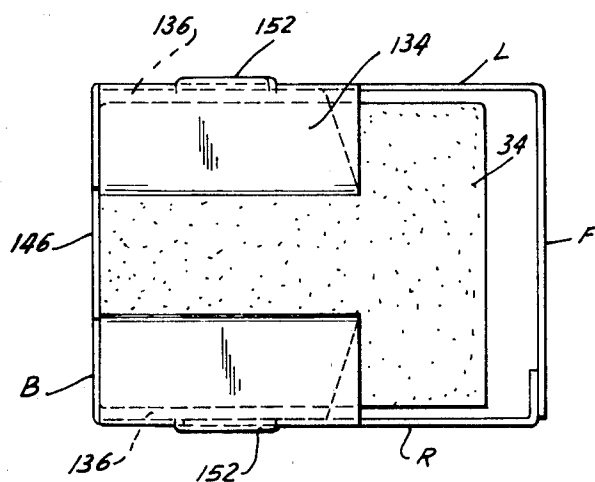


FIG. 4

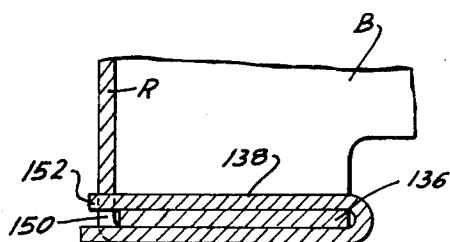
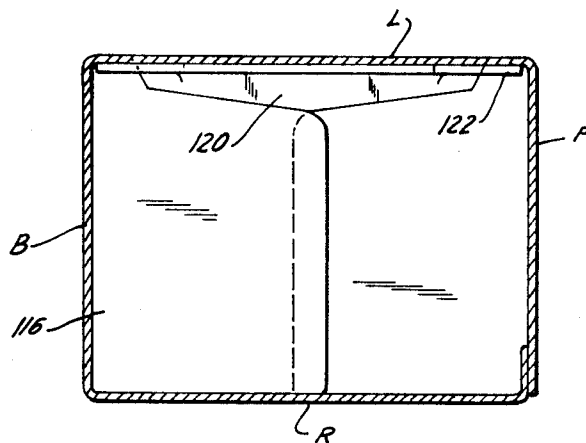


FIG. 6

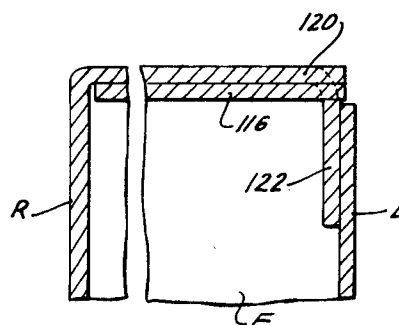


FIG. 5

INVENTOR
THEODORE H. STAWSKI

BY

Kane, Dabner, Kane, Sullivan & Smith
ATTORNEYS

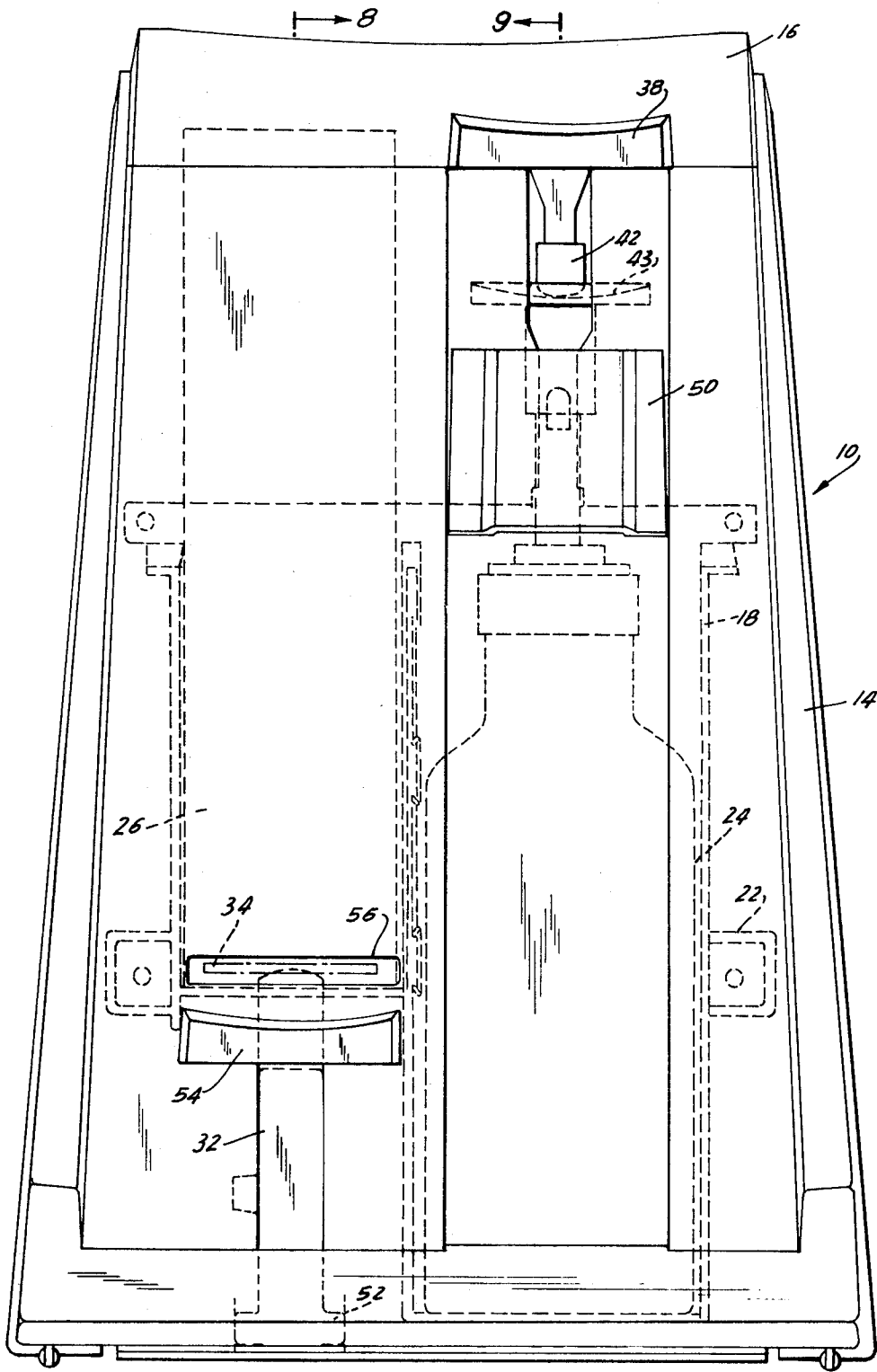


FIG. 7

INVENTOR
THEODORE H. STAWSKI

BY
Kane, Dabrowski, Kane, Sullivan & Smith
ATTORNEYS

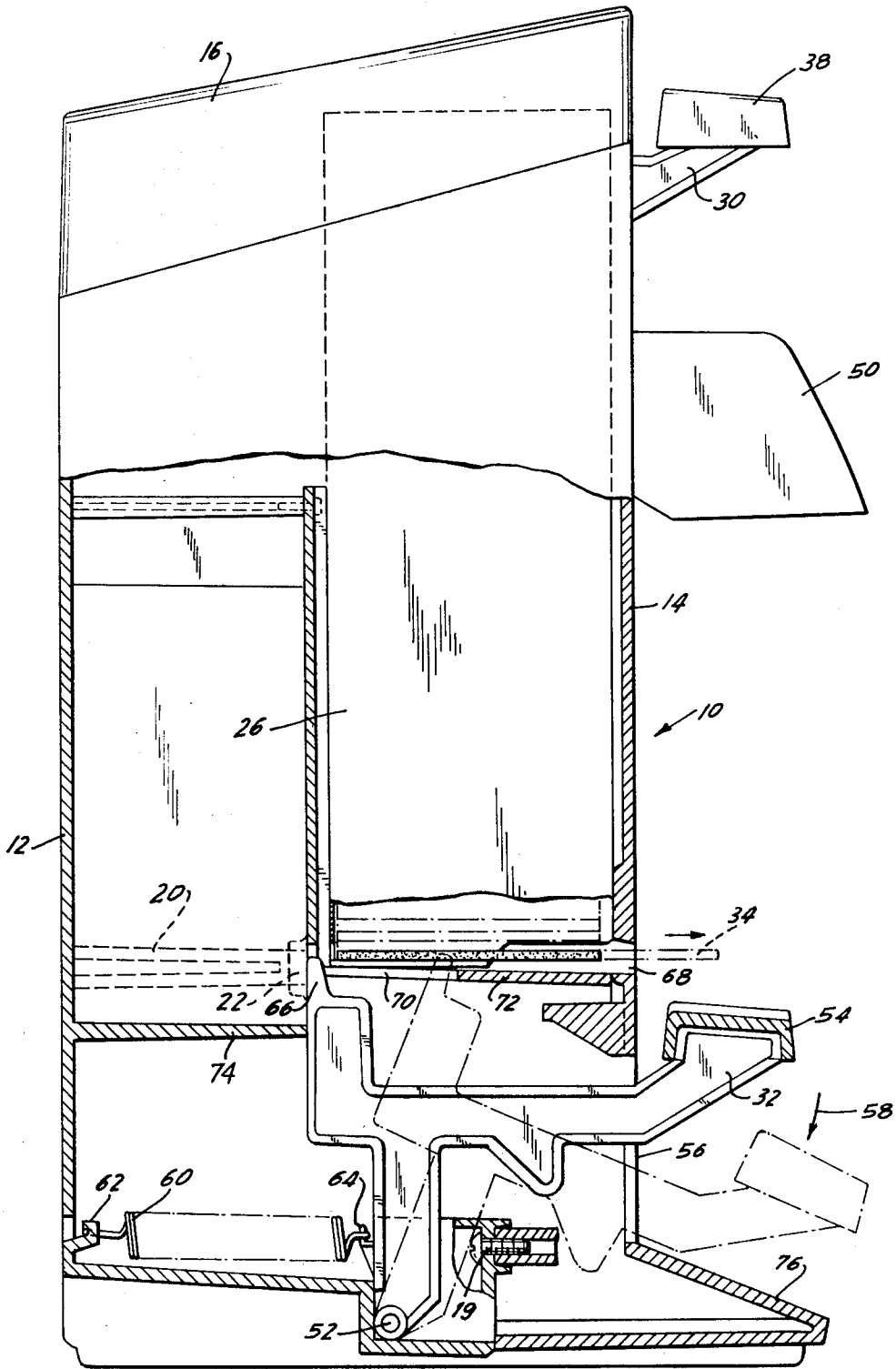


FIG. 8

INVENTOR
THEODORE H. STAWSKI
BY
Kare, D. Binner, Kare, Sullivan & Smith
ATTORNEYS

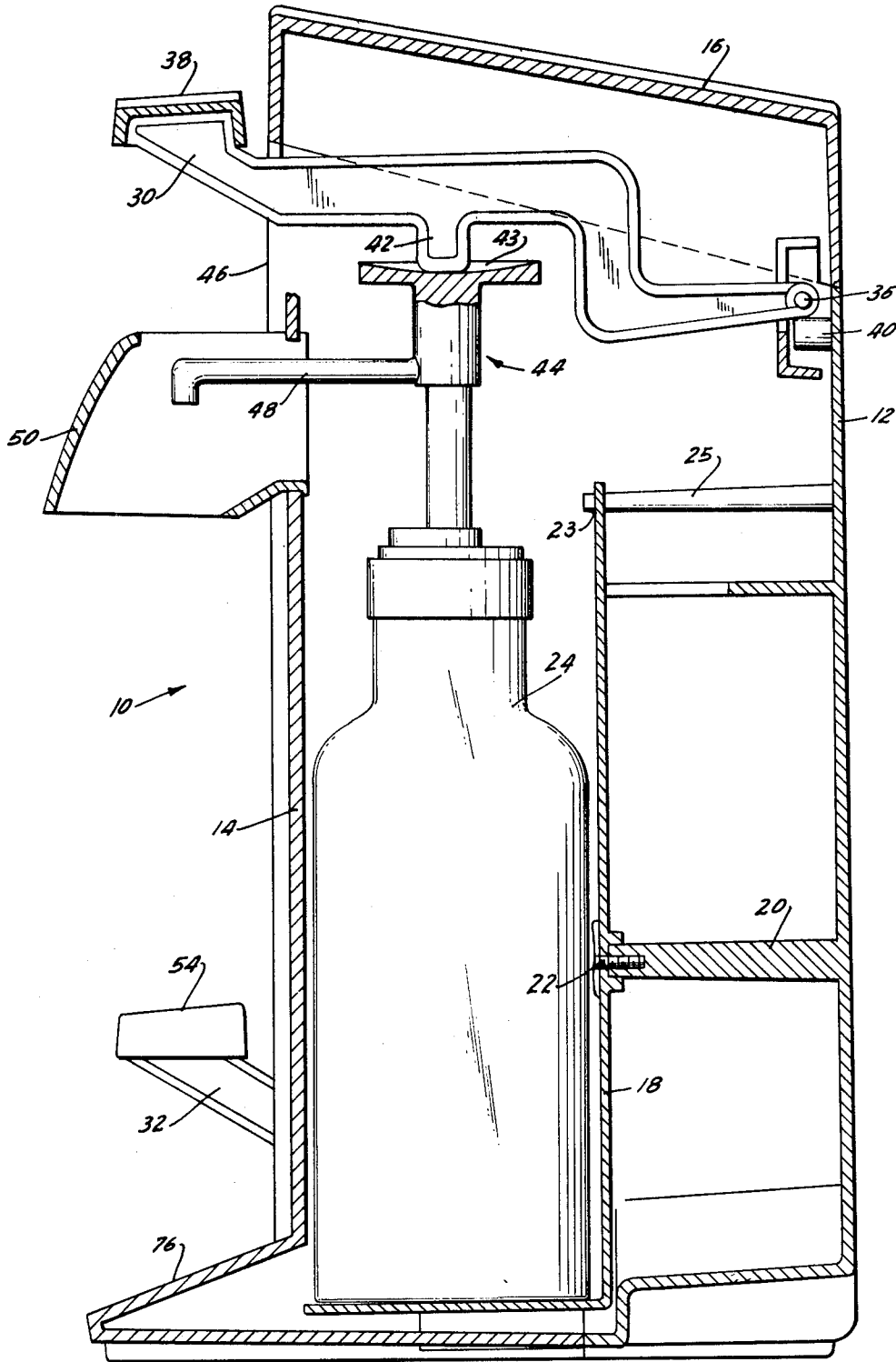


FIG. 9

INVENTOR
THEODORE H. STAWSKI
BY
Kane, Doherty, Kane, Sullivan & Smith
ATTORNEYS

SWAB DISPENSER FOR PACKAGE THEREFOR

The present invention relates to a dispensing apparatus and particularly to a portable dispensing apparatus for dispensing both unpackaged swabs and a liquid charge of a sterile moistening medium.

The dispensing apparatus of the present invention has particular adaptation for use in a hospital or clinic or an equivalent installation.

As is well known in the preparation, for example, of a patient prior to receipt of an injection of one form or another, or prior to the donation of blood, it is medicinally necessary to cleanse by swabbing the area of the injection with alcohol or some other suitable cleaning and sterilizing solution. Swabs for this purpose are presently available. However, presently available swabs are generally prepackaged for marketing. While the swabs are, as a general rule, premoistened with alcohol, it is obviously necessary to open the package for use. This operation, if by chance the doctor or nurse is holding a syringe, is difficult if not impossible to accomplish with one hand. Therefore, it becomes necessary to place the syringe within some sort of a sterile field to reduce the possibility of the syringe becoming contaminated. Contamination is not always prevented with obvious results. The reverse situation is also true, as for example, if the swab package be opened first, it is found to be difficult to hold the swab and fill the syringe with proper medicament.

In consideration of the foregoing problem, it is an object of the present invention to provide a dispenser assembly for dispensing a unitary unpackaged swab and a sterilizing liquid for moistening the swab, the dispensing of which may be easily accomplished with one hand.

A further object is to provide a dispensing apparatus which is portable, relatively simple to operate, uncomplex in overall construction thereby being relatively low in cost and esthetically pleasing in appearance.

Another object is to provide a package for the stacked storage of a plurality of swabs to be received by the assembly which is constructed, at its supporting base, in a manner to provide a front dispensing opening for the swab and a rear slot to accommodate the entrance and passage of a dispensing assembly mechanism upon actuation of the same.

Other and further objects of the invention will readily appear to those skilled in the art as the disclosure, to be read in conjunction with the accompanying drawings, continues.

In carrying out the aforementioned objects the invention contemplates the provision of a portable casing in which a package containing a plurality of stacked swabs and a liquid-containing reservoir are disposed. The casing mounts for pivotal movement a pair of lever arms adapted, each upon movement, to dispense swabs in a serial fashion and a charge of the moistening liquid thereby to moisten the swab. The reservoir includes a pump means activated by one of the lever arms and a spout through which the liquid is discharged. The other lever arm intercooperates with the package thereby to push with a finger a swab from the same and through a dispensing opening in the casing.

The package is contemplated as being formed from a blank of material folded about a plurality of longitudinal score lines and secured together thereby to define, in horizontal section, a rectangular opening therein. The blank includes an upper flap lock structure including a pair of side flap elements foldable so as to be normal to a sidewall and a third flap foldable to overlie the side flaps and further including a tongue portion which is moved into the package confines and which intercooperates with the side flaps to provide a releasable flap lock. A swab support structure is provided at the blank bottom and includes a plurality of flap elements in side-by-side relation. The center element is provided with a U-shaped cutout with the opposed sides of the element forming with the side elements a pair of spaced swab-supporting shoulders. Each of the elements are folded about a score line downwardly removed from the plane of the base of the cutout a distance approximately equal to the thickness of a swab adapted to be disposed

on the shoulder with the side elements being folded about the opposed sides. The cutout in the center elements allows passage of a dispensing means to dispense the swab supported by the shoulder.

The accompanying drawings form a part of the present invention. By these drawings:

FIG. 1 is a plan view of a material blank from which the package of FIG. 2 is formed;

FIG. 2 is an isometric view of the package and a cover for sealing a bottom dispensing opening;

FIG. 3 is a plan view, seen in the direction of line 3-3 in FIG. 2, of the dispensing opening for dispensing sequentially a plurality of swabs;

FIG. 4 is a horizontal sectional view, seen along the line 4-4 in FIG. 2, showing the upper package portion representing the top flap lock;

FIG. 5 is a partial vertical sectional view, seen along the line 5-5 in FIG. 2, showing a different portion of the top flap lock;

FIG. 6 is a vertical sectional view, seen along the line 6-6 in FIG. 2, showing the structure at the package bottom for supporting a stack of swabs;

FIG. 7 is a front elevation of the casing, showing in phantom certain internal constructional features;

FIG. 8 is a side elevation of the casing, partially in vertical section as seen along the line 8-8 of FIG. 7, illustrating the swab lever mechanism; and,

FIG. 9 is a vertical sectional view, seen along the line 9-9 in FIG. 7, illustrating the liquid lever mechanism.

The drawing figures, specifically FIGS. 7-9, show a casing or housing generally represented by the numeral 10. The casing may be molded from any one of the plastic materials, such as polyethylene, polystyrene, and polypropylene, commonly used in the molding arts. The casing may also be cast from one of the lightweight metals, such as aluminum. A molded casing of polystyrene however, has proved to be satisfactory for most purposes and this material is preferred.

The casing is formed by a back section 12, a front section 14 and has a cover 16. The cover, for example, is adapted for frictional receipt upon a flanged edge of the front and back sections when assembled. Although not clear from the drawings, the front and back sections adjoin one another along the sides of the casing and the sections, also, may be secured together by appropriate means, such as by a frictional intercooperational fit between a flanged edge on one section and a cutout edge on the other section. Further, a secure fit may be assured by the intercooperation of a plurality of spaced protuberances on the front section and a plurality of spaced depressions on the back section or vice versa. Additionally, the parts may be secured by one or more screws as at 19 in FIG. 8.

The casing defines a shell or open internal chamber. An insert member 18 is received within the chamber and mounted by internal supporting structure to support the insert thereby to compartmentize the otherwise open interior space. Thus, the insert may be mounted and secured to a casing rib 20 by screw 22 and similarly received on a second rib 25 as at 23.

The insert provides a supporting surface for a bottle 24 and a package 26 to be described in detail hereinafter. A second or reserve package (not shown) may be disposed within the casing to the rear of package 26.

A pair of levers 30 and 32, operable to dispense a charge of alcohol or other sterilizing liquid from the bottle 24 and a swab 34 from the package 26, are pivotally mounted by the casing. These will be discussed hereinafter.

The swab 34 may be formed of cotton with polyethylene or some other resinous backing material on one side. In this manner, the possibility of the cotton fibres of a pure cotton swab entangling with one another during the sliding action required in dispensing the swab is obviated. The swab may also be made of one of the manmade fibres such as rayon. For several reasons, however, the manmade rayon fibre is preferred in the particular adaptation which is desired and which is now being discussed. Thus, the rayon swab, since it is manmade, may be cleaner than the cotton, it may be cosmeti-

cally more appealing than the cotton swab which oftentimes contains dark spots (although these have no relative to sterility), and the rayon swab has been found to be more absorbent than the cotton swab per unit thickness of material. Thus, a swab formed from the manmade rayon material may be of reduced thickness yet still absorb a necessary volume of liquid. Further still, the reduction in thickness allows a greater quantity of swabs to be packaged.

Lever arm 30 may be best seen in FIG. 9. The lever is of elongated dimension, and may be generally I-shaped in cross section throughout its length. The lever terminates in a T-shaped end 36. A thumb-engaging piece 38 may be carried at the other end. The end 36 is conventionally mounted by a bracket 40 carried by the back section 12 so that the pivotal action of the arm is about its mounting. The lever arm 30 carries between its ends a portion 42 which is adapted to rest on the upper surface 43 of a pump arrangement 44 when a bottle 24 is in place on the insert 18. In the arrangement shown and by means of a slot 46 provided in the front wall of the section 14 the lever arm 30 may be suitably actuated to dispense fluid, upon downward movement of the pump, from the nozzle 48 of the pump 44. A shield 50 is mounted by the front wall and provides protection against damage of the nozzle 48.

The other lever arm 32 may be best seen in FIG. 8. This arm is of a construction and is mounted in a manner generally similar to that of the lever arm 30. Thus, the arm is pivotally mounted at 52 and carries a finger-engaging member 54 on the end of the lever which projects through slot 56 in the front wall 14. Movement of the lever is in the direction of the arrow 58 from the solid line position to the dotted line position thereby to dispense, upon each downward stroke, a swab 34.

The lever arm 32 is biased in the counterclockwise direction or solid line position (FIG. 8) by means of a tension spring 60 which may be of any material commonly used in the arts. The spring is mounted at one end on a lip 62 formed in the backwall 12 and at the other end on a lip 64 formed in the arm itself. Mounting is accomplished by a pair of inside hooks carried by the spring.

A finger 66 is formed in the lever and functions as may be apparent from the figure to engage the rear end of the swab 34 throughout each forward pivotal movement thereby to push the swab through a dispensing opening 68 in the front wall 14. In this operation, the finger moves within a slot 70 formed in the bottom wall 72 of the insert 18. The finger, also, as is necessary, is capable of entering the interior of package 26 upon each dispensing operation. This is effected by the construction of the package, to be described below.

The angular distance traversed upon each cycle of the lever is determined, in one direction, by a biasing stop due to the intercooperation of the lever and a member 74 and, in the other direction, by the intercooperation of the lever and a sloping portion 76 formed in the front wall.

The casing is a transportable unit and, in this connection, may be provided with a handle (not shown) for this purpose. Such a handle may appropriately be mounted by the front and back sections with the area of their junction with each other. Suitable indicia may be provided, as desired.

In operation, the lever 32 is depressed thereby to dispense one of a plurality of stacked and unwrapped swabs from the dispensing slot 68. Thereafter, the swab may be easily supported by the fingers of one hand beneath the nozzle shield 50 so that a charge of alcohol or other suitable sterilizing liquid may be dispensed by thumb pressure on the lever 30. The total operation is easily accomplished by one hand while the other, for example, grasps a syringe or other medical instrument. Thus, the problems heretofore faced are obviated.

The package 26 is formed from a blank 100 which is clearly illustrated in FIG. 1. The blank material, as is conventional in the packaging arts, may be formed of cardboard, heavy paper, or the equivalent. The main criterion for the blank material is that it be capable of being formed, by folding, into a package of relatively sturdy construction.

The blank, to assist in the folding operation, is provided with score lines 102—108 between the top lock structure 110 and the bottom swab support structure 112. The score lines run the length of the blank and bound the front "F," left "L," back "B," and right "R" sides respectively, as seen from left to right in FIG. 1. (The sides are identified by the physical orientation of the package in the casing.) The narrow strip 111 bounded by the score line 108 is, upon folding, secured along the edge of the front side by a suitable adhesive or otherwise adhesively secured thereto. To reduce the possibility of any folding interference between the top lock structure 110 and the swab support structure 112, the ends of the strip are tapered as at 113.

The top flap locking structure 110 will now be discussed. This structure is defined by a pair of flaps 114 and 116 extending from the front and rear sides, respectively, and separated from the sides by a score line 118 that extends across the upper portion of the blank. A top flap 120 extends from the right side and terminates in a generally semicircular portion 122 separated from the flap 120 by an additional score line 124. This type of construction is also provided to close one end of a cap member 126 (FIG. 2) which functions to close the bottom swab dispensing portion of the package 26 prior to use.

In closing the upper end of the package 26, the flaps 114 and 116 (flap 116 is separated from the top flap 120 by a cut 128) are folded about the score line 118. The top flap 120 is similarly folded about the score line and the portion 122 is moved into the package and past the cutout surfaces 130 of flaps 114 and 116. An interlocking relationship is provided between the lower area of the cutout in the flaps and the outer cuts 132 in the score line 124.

The swab supporting structure 122 includes a plurality of sections 134—138 extending, respectively, from the left, back and right side of the package. The cuts 140 and 142 separate the various sections for folding.

The section 136 is provided with a generally U-shaped cutout the base of which resides on the horizontal plane defined by the bottom surface of the front wall. A score line 144 extends across the three sections and is spaced downwardly from the plane a distance approximately equal to the thickness of a swab. In this manner, the structure provides a swab support surface below the upper edge 146 of the opening in the backwall.

As shown, the sections 134 and 138 are additionally scored at 148 and include, at the base and generally on the scored line 144, a slit 150 for cooperation with a tab 152.

In forming the support structure, the section 136, then each of the sections 134 and 138, are folded about the scored line 144. Thereafter, the sections 134 and 138 are folded on the score line 148 and about the opposed sides of section 136 with the tabs 152 being received within the slots 150. In this manner, as clearly shown in FIGS. 1, 3, and 6, a pair of shoulders, disposed below the front and rear openings, are formed for support of the swab column. Thus, when the package is disposed in position within the casing 10 (see FIG. 8), the finger of lever arm 32 will clear the edge 146, enter the package interior during forward pivotal movement and push to dispense one swab both from the package and through the opening 66. The swabs remain, during the dispensing operation, in a generally horizontal disposition. In this connection, the swabs are supported by the shoulders throughout a major portion of their length. Further, the weight of the swab column tends to maintain the horizontal disposition of the dispensed swab.

From the foregoing discussion of what may be considered a preferred embodiment of the generic invention it should be apparent that the objects and advantages of the invention are carried out as are other objects and advantages not specifically discussed but which are apparent to those skilled in the arts.

I claim:

5

1. A package adapted for storing a plurality of stacked swabbing pads comprising a casing having substantially parallel sides and integral closure means at one end of the casing, means at the other casing end for supporting the bottom swab pad of said stack in sliding dispensing alignment with an hereinafter defined dispensing opening, said supporting means including a pair of spaced and oppositely opposed shoulders carried by said casing sides, with free edges on said shoulders defining the spaced relationship therebetween, said shoulders being integral with said casing and substantially perpendicular to the sides thereof, the free edges of said shoulders forming a channel to permit engagement with the exposed bottom swab pad at the other end of said casing and the directing of said swab pad into the dispensing opening, and a dispensing opening formed in said casing front through which said swabs are adapted to be in slidably dispensed seriatim.

2. The package of claim 1 comprising second closure means received on said other casing end thereby to close said dispensing opening and being removable from said received position to allow said swabs to be dispensed.

3. The package of claim 1 wherein said casing comprises a unitary elongated rectangular cardboard blank, said blank carrying a plurality of spaced parallel scored lines dividing said blank into a plurality of adjoining side sections and an end flap, said blank being foldable about said scored lines forming in horizontal section a rectangular body secured together by said end flap immovably joined to the inner surface of said body side sections.

4. The package of claim 3 wherein said casing closure means includes a plurality of closure members extending lateral of, integral with and along a top side of the blank, said closure members adapted to be folded about a score line with the plane of the blank top thereby to close the casing end.

5. A package adapted for storing a plurality of stacked swabbing pads comprising a casing including closure means at

6

one end of the casing, means at the other casing end for supporting the bottom swab pad for said stack in sliding dispensing alignment with an hereafter defined dispensing opening, said supporting means including a pair of spaced and oppositely opposed shoulders carried by said casing sides, and a dispensing opening formed in said casing front through which said swabs are adapted to be in slidably dispensed seriatim, said casing including a unitary elongated rectangular cardboard blank, said blank carrying a plurality of spaced parallel scored lines dividing said blank into a plurality of adjoining side sections and an end flap, said blank being foldable about said scored lines forming in horizontal section a rectangular body secured together by said end flap immovably joined to the inner surface of said body side sections, said casing supporting means including a plurality of individual supporting members extending laterally of three adjacent blank side sections and both integral with and along the bottom side of the blank, said supporting members being individually foldable about a score line spaced substantially the thickness of said bottom swab pad below the casing bottom, the outer of the supporting members having a width less than the width of the blank side section from which said member extends to define the dispensing opening, and the center of said supporting members having a central channel with its base disposed within the plane of casing bottom, said channel sides forming a portion of said opposed shoulders and said outer supporting members being foldable about said channel sides.

6. The package of claim 5 wherein said outer supporting members are of a length approximately equal to twice the width of the sides of the center supporting member and include a score line along substantially the median, and a tap at the end of each outer supporting member, each of said tabs intercooperable with a slot formed in the score line within the member and spaced from said casing bottom.

40

45

50

55

60

65

70

75

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,580,472 Dated May 25, 1971

Inventor(s) Theodore H. Stawski

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Title page, after [54] change "SWAB DISPENSER FOR PACKAGE THEREFOR" to "SWAB DISPENSER AND PACKAGE THEREFOR".

Column 1, line 1, change "SWAB DISPENSER FOR PACKAGE THEREFOR" to "SWAB DISPENSER AND PACKAGE THEREFOR".

Signed and sealed this 28th day of September 1971.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

ROBERT GOTTSCHALK
Acting Commissioner of Patents