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Moniot

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[54] **ARTICLE DISPENSER**

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 40,225, May 25, 1970, abandoned.

[52] **U.S. Cl.** **221/58,** 221/52
[51] **Int. Cl.** **B65h 1/12**
[58] **Field of Search** 221/52, 56–63, 221/33, 34, 274, 303, 307, 308, 310

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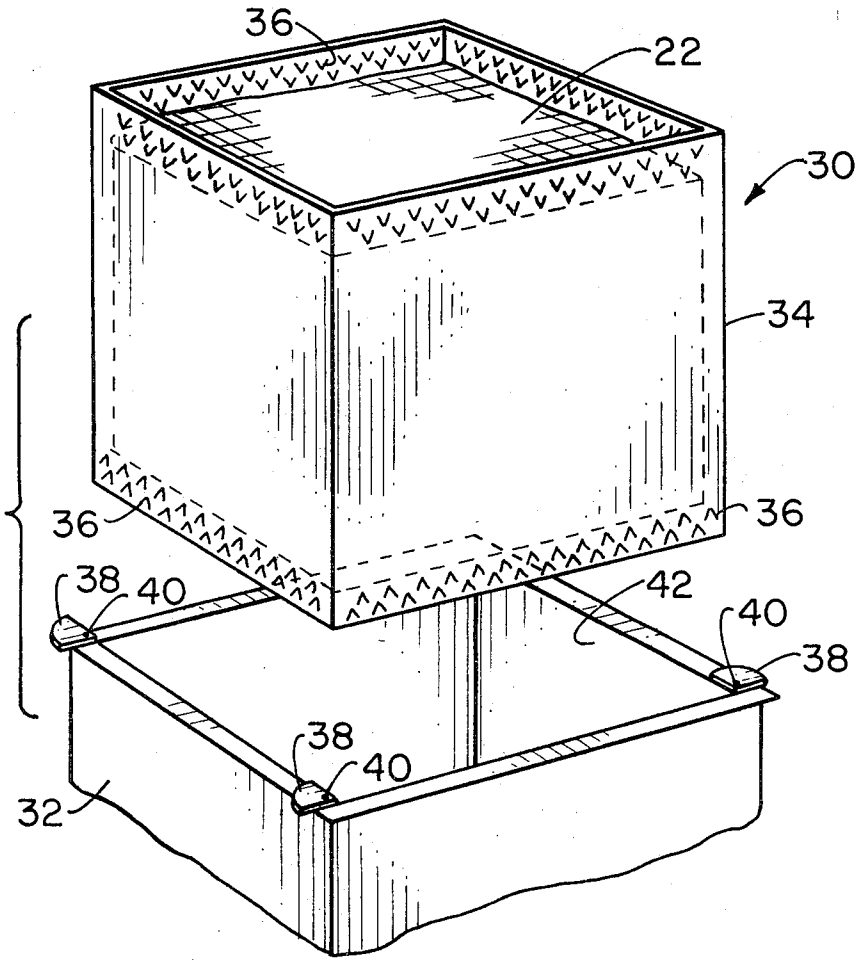
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[57] **ABSTRACT**

A dispenser primarily for dispensing articles such as pad-like sponges or cylindrical absorption articles used mainly in the field of medicine, dentistry and veterinary medicine wherein an enclosed chamber is employed to contain a plurality of articles with one side open thereof to permit removal of an article, a restrictive material secured to the interior of the open end which permits removal of a single article while tending to prevent removal of a plurality of articles. The dispenser may include a spring biased platform which biases the articles toward the open end.

4 Claims, 11 Drawing Figures



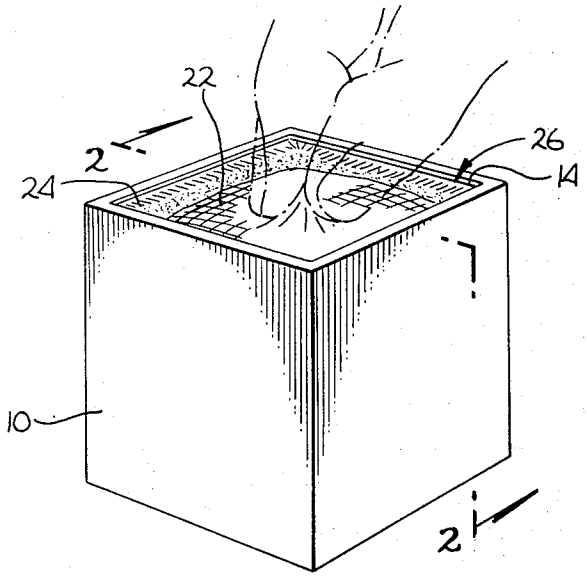


Fig. 1

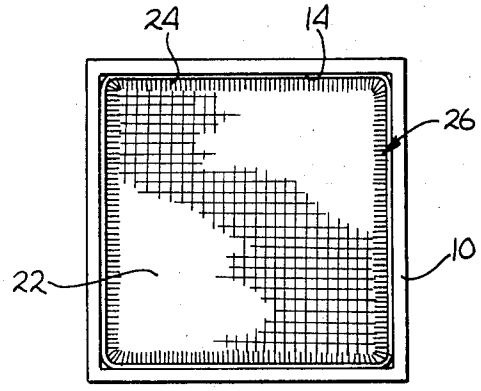
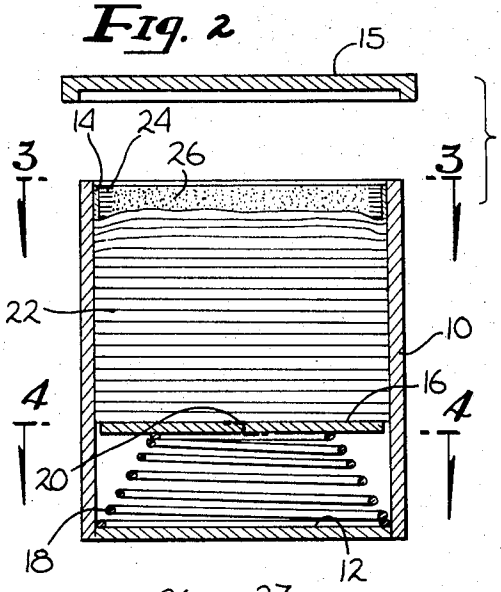


Fig. 3

Fig. 2



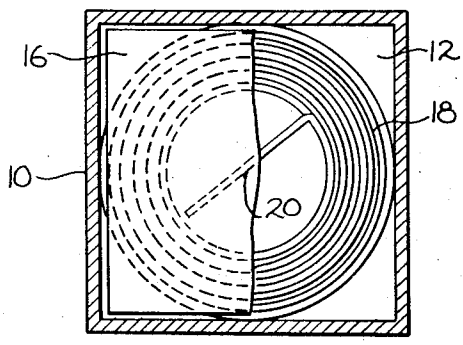


Fig. 4

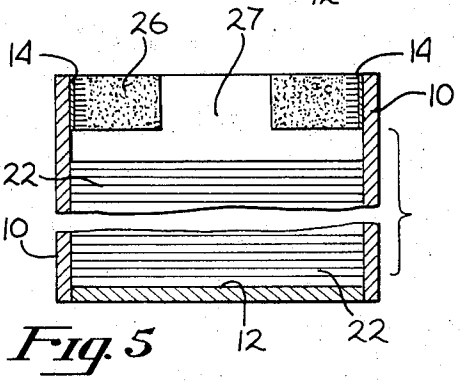


Fig. 5

Fig. 6.

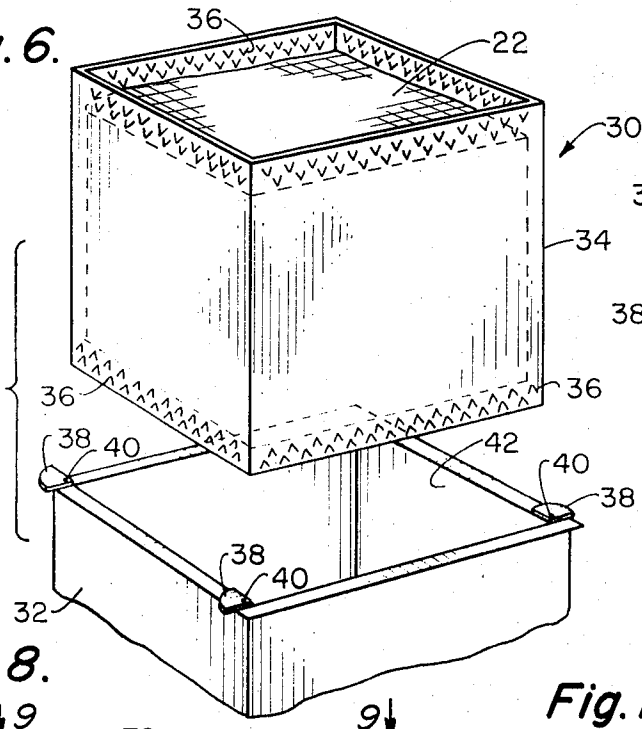


Fig. 7.

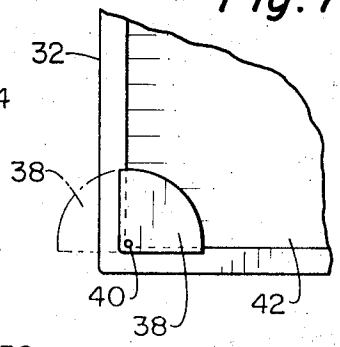


Fig. 8.

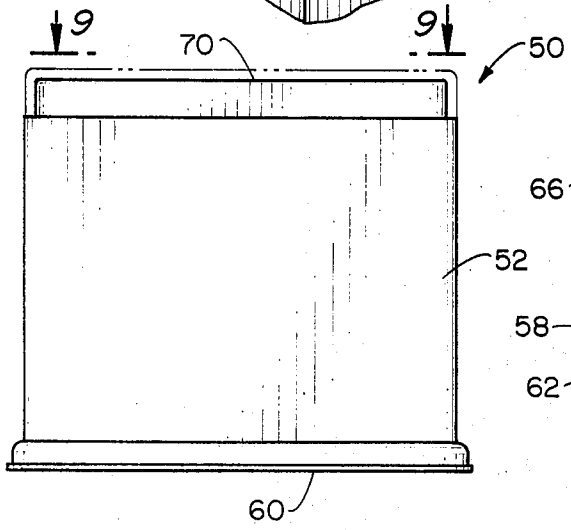


Fig. 10.

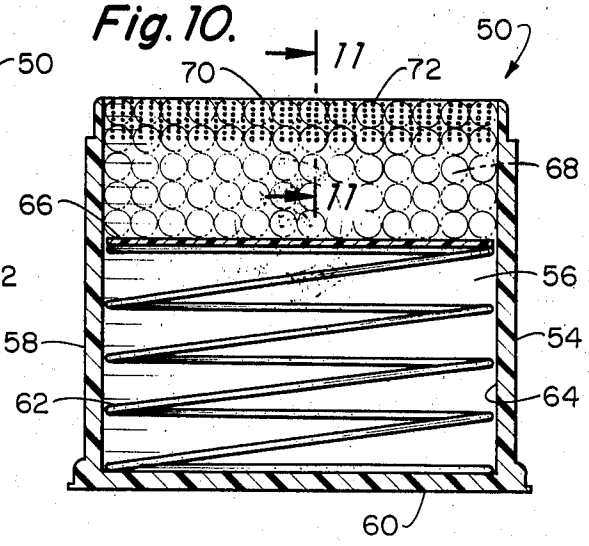


Fig. 9.

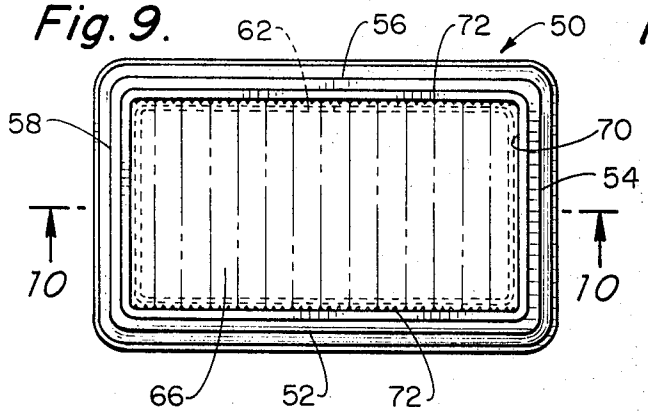
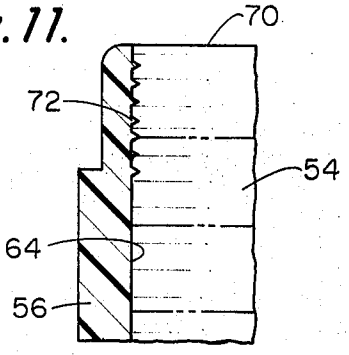


Fig. 11.



ARTICLE DISPENSER

This application is a continuation-in-part of patent application Ser. No. 40,225, filed May 25, 1970 now abandoned, entitled "Sponge Dispenser" by the present inventor.

BACKGROUND OF THE INVENTION

In areas of professional people doing services upon people such as doctors, including dentists, it is a prerequisite that some form of tissue be used to accomplish numerous functions. Such functions as absorbing blood, cleaning wounds, cleaning portions of a person's anatomy free from foreign material, plus numerous other similar functions, are absolutely necessary by such professional people. Also, it is required to make sterile fixed objects which are used upon patients or around patients such as the instruments attached to the dental unit, hand pieces, syringes, saliva ejector adaptor, and dental cabinet drawer pulls. As such functions deal with areas of the body which could be contaminated by germs, such tissue must be sterilized. Also, as the use of such tissue is not readily foreseen but required in a given instant (as to absorb a release of blood or the like), it is most desirable to make an individual tissue readily available for use.

In the field of dentistry it is most common to employ the use of a two by two inch square gauze pad to accomplish the function of a tissue. Such pads are used within patients' mouths to absorb blood, wipe the patient's face of blood or other foreign objects, as well as a great many additional cleaning and absorbing functions. Additionally, dentists frequently use cylindrical cotton articles to absorb blood and saliva within a patient's mouth.

It has not been readily convenient in the past to make readily available such gauze pads and cylindrical articles. Normally a number of such articles are supplied in a sterile package of one hundred. When a dentist opens the package of articles, exposing the articles, he reaches and normally attempts to grasp a single article. However, normally the dentist secures not only one article but a plurality thereof. Besides it being most difficult to grasp a single article because the articles tend to stick together, the dentist is usually not looking at the group of articles but is attempting to secure a single article by feel. Upon a number of articles being obtained when a single article is desired, the dentist commonly "shakes off" the excess articles and uses only the single article that remains in his hand. The articles that were shaken off usually fall to an unsterile area as the floor, requiring the disposal of such articles. Further, in attempting to secure articles "by feel", a number of such articles are contacted beyond what is required for the instant operation, thereby contaminating the unused articles.

Another problem with employing the articles directly from the package is that if not all the articles are used within a short period of time, because of the sterile conditions necessary for the articles, it is usually necessary to dispose of the remaining articles or resterilize such articles. This situation frequently occurs when the articles have been exposed to the air for a short period of time such as an operation upon one patient.

It would be most desirable to employ some form of apparatus which dipenses such articles in a sterile manner, one at a time, by the dentist grasping by touch only, not by sight. Also, it would be desirable that the apparatus could be located within a sterilizer overnight, thereby not requiring disposal or resterilization of the remaining articles from the open pack of articles the next day.

SUMMARY OF THE INVENTION

The first embodiment of the dispensing apparatus of this invention is designed to be most useful in dispensing square shaped gauze sponge pads of the type frequently used by dentists. However, it is to be understood that it is envisioned by the applicant that the dispensing apparatus of this invention will also be useful in other areas of dispensing as, for example, a gauze bandage dispenser for use by doctors and hospitals.

The first embodiment of the dispensing apparatus of this invention employs the use of a square shaped, box-like chamber having an open upper end therein. A lid is to cooperate with the dispenser which acts as a barrier to bacteria when the dispenser is not being used. Adjacent the open end of the chamber around the interior edge thereof is employed a restrictive material. Although this material may take various forms, it has been found to be most satisfactory that such material comprise rows of a plurality of flexible retaining elements extending inwardly from the interior surface of the chamber a predetermined distance. One form of such material found to be most desirable would be a strip of the flexible plastic loop clamping apparatus which is conventionally employed. Within the lower end of the chamber the dispensing apparatus may include a coil spring which operates to move a platform toward the open upper end of the chamber. A stack of gauze pads is to be located within the chamber in a contactual relationship with the platform, the platform and stack of pads being biased by the spring toward the open end of the chamber. The function of the material is to prevent automatic removal of the pads from the chamber due to the action of the spring bias. However, as the pads are only supported or retained against movement from the chamber about the periphery of the pad, the dentist may in an unhindered manner pinch the uppermost pad within the central portion thereof, and by pulling upward cause the removal of said pad from the stack of pads. As the uppermost pad is the only one which is pinched, only that pad is removed. The loop-like material assists in the removal of only a single pad by instituting a clamping action against the next uppermost pad.

The second embodiment of the article dispenser of this invention provides for a similar type of dispenser which is specifically designed to dispense the cylindrical cotton rolls which are in common use by dentists. The second embodiment dispenser is substantially rectangular in configuration and includes the use of a spring biased platform as does the first embodiment. However, the restrictive material is located only on the long edges of the rectangularly shaped open end with no restrictive material being located on the short edges of the rectangularly shaped open end. The reason for this will become more apparent further on in the description.

It is an object of the present invention to provide a dispensing apparatus for a stack of articles wherein only the uppermost article is removed from the stack.

It is another object of this invention to provide a dispensing apparatus which is of simple construction and not complex in installing the articles within the device nor in the removal of the articles therefrom.

It is another object of this invention to provide for the use of a restrictive material which facilitates the removal of the uppermost article from the stack while yet preventing removal of any other article within the stack.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the first embodiment of dispensing apparatus of this invention showing the procedure for removing the uppermost pad from the stack of pads contained within the dispensing apparatus;

FIG. 2 is a cross-sectional view of the dispensing apparatus of FIG. 1 taken along line 2—2 of FIG. 1;

FIG. 3 is a top view of the dispensing apparatus of this invention taken along line 3—3 of FIG. 2;

FIG. 4 is a fragmentary, partly-in-section view of a portion of the dispensing apparatus of this invention taken along line 4—4 of FIG. 2;

FIG. 5 is a cross-sectional view of the basic form of dispensing apparatus wherein the use of the spring biased platform is not employed;

FIG. 6 is a perspective view of a second embodiment of the dispensing apparatus of this invention;

FIG. 7 is an enlarged fragmental view of a corner latch employed in FIG. 6;

FIG. 8 is a side view of the third embodiment of the dispensing apparatus of this invention;

FIG. 9 is a plan view of the third embodiment of the dispensing apparatus of this invention taken along line 9—9 of FIG. 8;

FIG. 10 is a cross-sectional view of the third embodiment of the dispensing apparatus of this invention taken along line 10—10 of FIG. 9; and

FIG. 11 is a fragmentary cross-sectional view through a portion of the third embodiment of the dispensing apparatus of this invention taken along line 11—11 of FIG. 10.

DETAILED DESCRIPTION OF THE SHOWN EMBODIMENT

In referring particularly to the drawings, there is shown in FIG. 1 the first embodiment of this invention including a box-like chamber 10 being substantially square in configuration and of sufficient size to cooperate to retain a stack of gauze pads two inches by two inches in size. It is to be understood that although this particular device is designed to cooperate with a two by two inch gauze pad, it is to be understood that this apparatus could be readily employed with other sizes of pads or other types of pads. Also, the device could be employed to dispense a mass of material as cotton or the like. Chamber 10 has a closed end 12 and an open end 14. A cover or lid 15 is provided to close the chamber 10 to the atmosphere when not in use. The lid is to prevent contaminates entering chamber 10 during nonuse or spillage. Within the modification of FIGS. 2–4, movably retained within chamber 10 is a platform 16. A coil spring 18 is supported upon closed end 12 and is connected to platform 16. The end 20 of coil spring 18 cooperates with the corresponding aperture located within platform 16. The coil spring 18 is chosen to be of sufficient length so that when completely compresed and adjacent closed end 12 of the chamber, upon complete expansion of spring 18 the platform 16 is moved adjacent the open end 14 of chamber 10. The stack of gauze pads 22 are to be supported upon platform 16 and are biased by spring 18 toward open end 14. It is also to be noted that the biasing force of spring 18 is selected to as to overcome the weight of the complete stack of gauze pads 22, plus the weight of platform 16 as well as the friction of the ascending pads 22 still remaining in the chamber 10.

Attached to the interior of chamber 10 adjacent opening 14 is a restrictive material 26. Material 26 surrounds the entire periphery of opening 14 and functions to decrease the area of opening 14. Although many such types of restrictive materials could be employed, as abrasive materials or a single inwardly facing lip, one particular material has been found to be most advantageous. It is desirable that the material be composed of a plurality of vertically spaced rows of rigid plastic projections 24. The projections are to be of a length as to slightly engage the edges of a sponge below the one that is withdrawn from the chamber 10. Normally, with a 2 inches × 2 inches sponge dispenser it has been found that about a one-sixteenth of an inch overlap will engage the edges of the sponges and hold back the sponges below the one that is withdrawn.

Referring particularly to FIG. 5 of the drawing, the chamber 10 can be employed without the use of the spring biased platform 16 and spring 18. As long as the opening 14 is of sufficient size for a person's fingers to enter, the top pad is pinched and extracted as previously stated. If more than one pad 22 is being withdrawn, the restrictive material 26 will restrain all the pads except the top pad, permitting only the removal of the top pad. It is understood that the amount of overlap will depend on the size of the sponge as compared to the size of the chamber.

The operation of the first embodiment dispensing apparatus of this invention is as follows: The dotor is to remove the gauze pads 22 from the package in which they were supplied and insert them through opening 14 into chamber 10 into contact with platform 16. Upon release of manual pressure by the doctor, spring 18 exerts force through platform 16 and forces gauze pads 22 toward open end 14. The uppermost gauze pad is prevented from being extracted from the chamber 10 by means of the restrictive material 26 which contacts the gauze pad around its periphery. With the gauze pads 22 so installed, the pads are now ready to be used.

Upon the doctor desiring to employ the use of a pad, the doctor grasps as by pinching the uppermost pad as shown in FIG. 1 of the drawing. The doctor then pulls with an upward force causing the pad to be removed through opening 14 by-passing restrictive material 26. As only the uppermost pad is pinched, the remaining pads 22 in the stack are not withdrawn from chamber 10. It has been found that by use of the aforementioned projection type of restrictive material, such material tends to restrain the remaining pads in the stack and not prevent the removal thereof with the uppermost pad.

The operation of the modification of FIG. 5 is similar to that of FIG. 2 except that the pads are not located adjacent open end 14. Therefore, the doctor must "reach in" within chamber 10 and secure the top pad. Also, it is to be noted that it is not necessary to place

material **26** entirely about the periphery of opening **14.** Gaps **27** may be formed if desired placing the material **26** in each corner of the chamber **10.**

Referring particularly to FIGS. **6** and **7** of the drawings, there is shown a second embodiment **30** of the dispensing apparatus of this invention. A chamber **32** is formed similar to chamber **10,** but the interior surfaces of chamber **32** are smooth, that is, no restrictive material being located adjacent the top edge. The stack of pads **22** are located within a sleeve **34.** It is envisioned that sleeve **34** be readily disposable and therefore be formed of an inexpensive material of construction such as paper. At each end of the sleeve **34** is formed a row of inwardly extending projections **36.** Projections **36** are to be formed by "punching out" portions of sleeve **34.** Projections **36** are to retain the pads **22** until the operator removes a pad by an overt movement. Upon location of sleeve **34** within chamber **32,** the uppermost row of projections **36** function as the restrictive material as previously described. To prevent the tendency to remove the sleeve **34** during removal of the top pad **22,** locks **38** are employed at each corner of chamber **32.** Each of the locks **38** resembles segments of a circle and are pivotally attached by pivot pins **40** to chamber **32.** To locate the sleeve **34** within chamber **32,** each of the locks **38** are pivoted so as to be non-interfering with the opening **42** of chamber **32.** The sleeve **34** is then inserted within the opening **42** until locks **38** can be pivoted over the edge of the sleeve **34.** To remove the sleeve **34** the locks **38** are pivoted to a non-interfering position and the sleeve **34** removed.

It is to be understood that by use of sleeve **34,** such "refills" lowers the retail cost of the dispensing apparatus as it is not necessary to repurchase chamber **32.** A spring biasing means may be employed, if desired, within chamber **32** as previously described. Other forms of locks **38** may be employed, such being a matter of choice or design.

Referring particularly to FIGS. **8** to **11** of the drawings, a third embodiment **50** of the article dispensing apparatus of this invention is shown. The third embodiment **50** is shown substantially rectangularly shaped and in a manner similar to the previous embodiment has four sides **52, 54, 56** and **58,** and a bottom **60.** In a manner similar to the previous embodiments a spring **62** is located within the interior chamber **64** of the dispenser **50** and cooperates with a platform **66** to bias the cotton rolls **68** toward the open end **70.** The cotton rolls **68** are prevented from being ejected through the open end **70** by means of the restrictive material **72** located upon the long sides of the rectangularly shaped open end **70.** The restrictive material is to comprise a plurality of rows of projections in a manner similar to the first embodiment. It is necessary that the restrictive material only contact the longitudinal ends of each of the cotton rolls or cylindrical articles **68.** This provides sufficient restriction of the cotton rolls to prevent such from being ejected from the dispenser **50.**

The normal method of packaging of these cotton rolls **68** is to supply them in masses of a hundred in a cylindrically shaped package. This package has the cotton rolls tightly packed therein and includes paper surrounding the sides of the cotton rolls but not the ends of the cotton rolls. Another reason for the omission of the restrictive material upon the short lengthed edges of the rectangularly shaped open ends **70** is so that the packaged cotton rolls may be readily inserted within the dispenser **50.** Once the package is located within the dispenser **50,** the operator tears the paper and thereupon just pulls the paper out of the dispenser thereby leaving the cotton rolls within the dispenser. This paper will readily slide along a short edge of the rectangularly shaped opening **70.** However, if there was restrictive material on the short edges, the paper would more than likely tear and it would be difficult to remove such.

The material of construction of the embodiments of this invention could be one of several different types of materials. However, as it is desired to place the entire device within a sterilizer which may give off heat energy as high as 265° Fahrenheit, it is desired that the material be non-meltable at such a temperature. Although any one of several different types of metals could be employed, it is envisioned that the most desirable material would be a non-meltable plastic.

It is to be considered within the scope of this invention that numerous, different types of restrictive materials **26** could be employed. Also, the bristles of a brush could be employed as the restrictive material with the bristles being mounted upon a metallic backing or just being located in a groove within the chamber **10.** Further, the restrictive material could comprise a disruption of the surface of chamber **10** or a disruption of a separate metallic strip attached to chamber **10.** It is also considered within the scope of this invention to incorporate modifications such as providing a recess within the platform **16** for cooperating with the top portion of spring **18,** anchoring the spring **18** to the closed end **12.** Numerous other modifications will be believed to be readily apparent to others without departing from the scope of this invention. Also, the chamber **10** could be constructed of a heavy cardboard material which would be disposable after use of the stack of pads. The cardboard may be of sufficient strength to permit resterilization if all the pads contained therein are not used in a given operation.

What is claimed as new in support of Letters Patent is:

1. In combination with a plurality of cloth absorbent articles such as gauze pads, whereby said articles tend to normally adhere to one another thereby making it difficult to extract a single article from the remaining articles, a dispensing device comprising:

a tubular chamber having a closed end and an open end, said open end being just slightly less in area than the cross-sectional area of said chamber;

a spring biasing means located within said chamber adjacent said closed end;

a platform movable within said chamber by said biasing means, said platform being movable from a position adjacent said closed end to a position adjacent said open end; and

a strip of restrictive material attached to the wall of said chamber and located within said chamber directly about said open end, said restrictive material comprises a plurality of vertically spaced rows of rigid projections, said articles being supported upon said platform and biased by said biasing means into contactual relationship with said restrictive material, the area of the opening determined by said restrictive material being just slightly less than the area of said open end, said inward extension of said restrictive material being of a sufficient length to retain the ungrasped articles within

said chamber upon removal of the uppermost article or articles, said inward extension of said restrictive material being of a length to substantially unhinder locating of a group of said articles into said chamber through said open end.

2. A dispensing apparatus comprising:

a chamber having a central opening, the walls of said opening being substantially smooth;

a sleeve being capable of matingly cooperating with said opening, said sleeve being adapted to contain a plurality of absorbent pads;

a row of projections extending inwardly of said sleeve and located adjacent one end thereon;

a locking means to retain said sleeve in cooperation with said opening of said chamber; and

said chamber and sleeve being of a polygonal configuration, said locking means comprising a plurality of separate locks, one of said locks located in each corner of said polygonal chamber.

3. An apparatus as defined in claim **2** wherein:

a biasing means being located within said chamber to bias the absorbent pads toward said projections.

4. An apparatus as defined in claim **2** wherein:

a row of said projections being located adjacent each end of said sleeve.

* * * * *