Aug. 28, 1934. C. D. LUKENS 1,971,570

DISPENSING CONTAINER FOR SURGICAL SUTURES

Filed Jan. 18, 1932

Fig. 1.

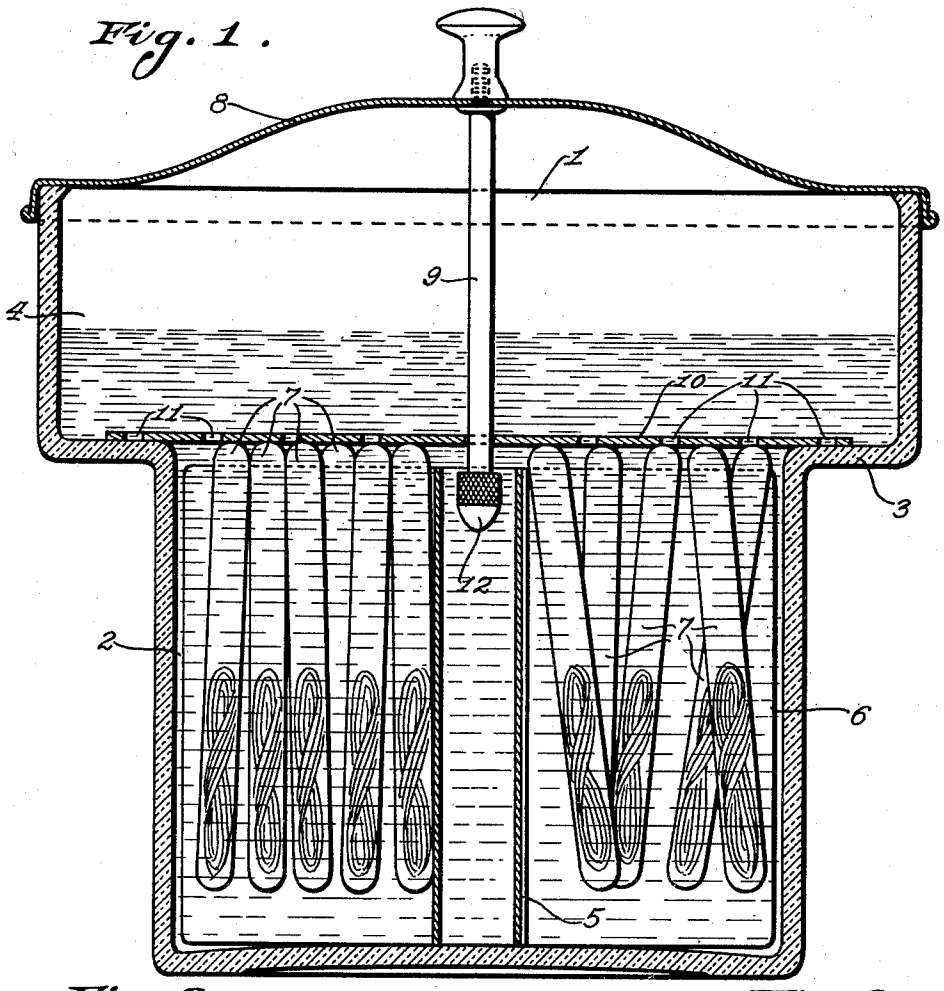


Fig. 3.

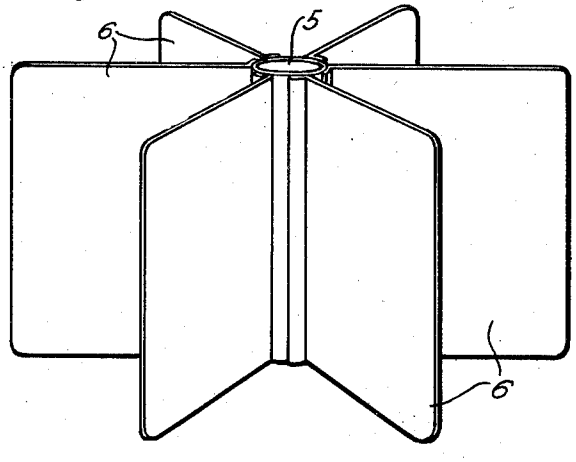
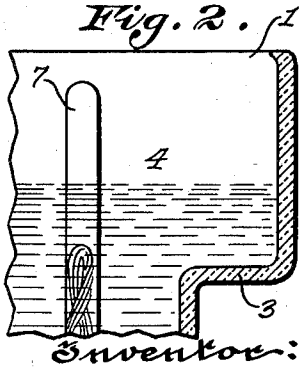


Fig. 2.



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DISPENSING CONTAINER FOR SURGICAL SUTURES

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8 Claims. (Cl. 167—3)

This invention relates to a dispersing container, and more particularly, to one for dispersing surgical sutures.

These sutures are usually prepared and furnished for use in hermetically sealed glass tubes containing a suitable antiseptic solution. The tubes also contain air so that they are buoyant in a liquid. In handling these sutures in a hospital, for instance, it is important that not only the sutures themselves be maintained in a thoroughly antiseptic condition, but also that the glass tubes in which they are contained be also maintained in an antiseptic condition up to the time when they are opened for use. It has been customary to store these articles in glass jars containing an antiseptic solution in which the suture tubes are submerged. If a jar of this kind contains a considerable number of suture tubes, the tubes occupy a considerable portion of the volume of the jar and consequently the volume occupied by the articles is large as compared to the volume occupied by the antiseptic solution. Accordingly as articles are withdrawn the level of the solution in the jar is depressed and eventually there is insufficient to cover the articles and there is danger of the exposed portions becoming infected.

One of the objects of this invention is, therefore, to provide a container or bath for articles of this type, such that the antiseptic solution may be contained therein in such a manner that as the articles are withdrawn a sufficient amount of liquid will be held in reserve so that the liquid level will not fall low enough to expose the articles.

It is, of course, obvious that a sufficient quantity of liquid can be provided by simply using a very deep jar and keeping the articles submerged therein. The depth must be sufficient so that when only one article is left in the jar it will be covered by the liquid. With such a container the articles often have a tendency to hug the side walls of the container and it is difficult to pick them out for use. It will be understood that these containers are to be used, for instance, in an operating room where a suture must be quickly available at an instant's notice and every convenience in handling these articles enhances the safety of the patient undergoing the operation.

Another object of this invention, therefore, is to provide such a bath or container which may be so operated that the articles are exposed for extraction in a position spaced from the container walls so that they may be easily picked out.

Another object is to provide such a container with means to keep the article in upright position so that an article will float with its upper end exposed above the surface of the liquid.

Another object is to provide such a container with means for keeping the articles submerged but adapted to release the articles when the cover of the container is removed so that they may be easily accessible.

Further objects will appear from the following description taken in connection with the accompanying drawing, in which:—

Figure 1 is a vertical sectional view of a device embodying this invention;

Figure 2 is a sectional detail view illustrating a floating article with its end exposed for manipulation, and

Figure 3 is a perspective view of the spacer used to keep the articles upright in the liquid.

Referring now to the drawing, 1 designates generally a container of any suitable type preferably of glass adapted to contain the articles and the antiseptic solution in which they are immersed. The container illustrated is formed with two compartments, a lower compartment 2 of a size adapted to accommodate the number of articles to be stored and of a depth sufficient to contain liquid enough to submerge the articles. Above the compartment 2 the container is formed with an outwardly projecting portion 3 which may be of annular form so that the upper portion of the container provides a compartment 4 of increased lateral extent as compared with that of the compartment 2.

The horizontal dimensions of the compartment 4 are made sufficiently greater than those of the compartment 2 so that the compartment 4 is capable of containing an amount of liquid sufficient to compensate for that displaced by all the articles in the compartment 2 without causing the liquid level to drop below the upper rim of the compartment 2.

In order to separate the articles into groups and also to maintain them in upright position a spacer is provided as illustrated in Figure 3. This spacer comprises a central tube 5 which has attached thereto so as to extend radially therefrom a series of vanes or partitions 6. This spacer is placed in the compartment 2 so that the partitions 6 subdivide the compartment 2 into a series of subcompartments, or cells, each adapted to contain a number of the articles which are illustrated in the suture tubes 7. These cells are useful not only to maintain the articles in upright position, but so as to separate them so that sutures of different sizes or kinds may be placed in different cells.

A suitable cover 8 may be provided for the compartment 4 and this is preferably constructed so as to make a tight joint with the upper rim of the container in order to prevent undue evaporation of the liquid therein. Secured in any suitable manner to the cover 8 is a stem 9 extending downwardly into the container. Loosely mounted on the stem 9 is a heavy plate 10 preferably perforated as indicated at 11. A head or button 12 may be provided at the lower end of the stem 9 so as to retain the plate 10 on said stem. The plate moves loosely on the stem so that it may adjust itself to its proper position. The plate 10 should be heavy enough to force all the articles contained in the compartment 2 under the liquid so as to keep the same submerged.

In the use of this device the articles are placed in the compartment 2 suitably divided, if desired, among the cells formed by the partitions 6. While the articles 7 have a tendency to float, they are forced under the liquid by the plate 10 when the cover 8 is put in place. The plate 10 may be arranged to rest upon the offset 3, or any other suitable support at the upper rim of the compartment 2. Antiseptic solution is placed in the container preferably before the articles are inserted and at this time the container may be filled to the level of the offset 3. When the articles are inserted their displacement will cause a rise in the level of the liquid. The liquid so displaced will accumulate in the chamber 4 in which the rise in level will be less for a given quantity of displaced liquid then it would be in a compartment having the dimensions of compartment 2. Accordingly there is only a moderate depth of liquid in the compartment 4 above the offset 3.

The container being supplied with articles and solution and the cover 8 with its plate 10 being in place, when a suture is desired it is only necessary to remove the cover 8 which carries with it the plate 10 suspended on the stem 9. Removal of the plate 10 releases the articles 7 whose buoyancy causes them to rise in the liquid so that their upper ends project above the level of the liquid as shown in Figure 2. It will be noted that in this position, even though the articles may have a tendency to hug the wall of the compartment 2, they will be spaced a substantial distance from the wall of the compartment 4, and accordingly will be easy to pick out. An article having been selected and removed, the cover is simply replaced. As the cover is replaced the plate 10 forces the articles below the level of the liquid so that they will remain submerged until another is needed. In this way the articles may be maintained in a thoroughly sanitary condition until required for use.

It will be seen that this invention accomplishes its objects in providing a bath for articles of this type, in which a considerable number of articles may be stored and kept submerged in an antiseptic solution. They may be separated into groups and they are maintained in upright position. The form of the compartment 4 provides excess liquid capacity to take care of the liquid displaced from the compartment 2 by the articles. The entire organization is such that the articles are maintained in the desired condition and are quickly rendered available for use by simply lifting the cover from the container. It will be appreciated that this arrangement is such as to work a great saving of time in the handling of these articles, a feature which is of the highest importance in such places as operating rooms where every second counts.

While this invention has been described as embodied in a unitary device, it will be understood that certain individual features or sub-combinations thereof, may be useful without reference to other features and that the employment of such individual features or sub-combinations is contemplated by this invention and within the scope of the appended claims. It is obvious that various changes may be made in details of construction, within the scope of the appended claims, without departing from the spirit of this invention; it is, therefore, to be understood, that this invention is not to be limited to the specific details shown and/or described.

Having thus described the invention, what is claimed is:

1. An article bath, comprising, means providing a compartment adapted to contain the articles immersed in a liquid, and means providing a second compartment above and of larger horizontal area than the first compartment and in sealed communication therewith adapted to receive and hold rising liquid displaced from said first compartment by the articles.

2. An article bath, comprising, means providing a compartment adapted to contain the articles immersed in a liquid, means providing a second compartment above and of larger horizontal area than the first and in permanent communication therewith adapted to receive and hold rising liquid displaced from said first compartment by the articles, and means adapted to maintain the articles upright in said first compartment.

3. An article bath, comprising, a container having a compartment adapted to contain the articles immersed in a liquid, means providing a second compartment of greater lateral extent than and above said first compartment, a cover for said container, a stem extending downwardly from said cover, and a plate loosely mounted on said stem adapted to rest on the wall of said first compartment.

4. An article bath, comprising, a container for the article having a vertical wall the upper portion of which is offset outwardly a substantial distance so as to provide a restricted lower compartment and an expanded upper compartment adapted to receive and hold liquid displaced from said lower compartment, whereby an article floating in said lower compartment will be held by the wall thereof in spaced relation to the wall of said upper compartment.

5. An article bath, comprising, a container for the article having a vertical wall the upper portion of which is offset outwardly a substantial distance so as to provide a restricted lower compartment and an expanded upper compartment adapted to receive and hold liquid displaced from said lower compartment by articles immersed therein, said upper compartment being so dimensioned that the displaced liquid rises to a moderate depth in said upper compartment such that an article, when free to float, will protrude above the liquid level.

6. An article bath, comprising, a container for the article having a vertical wall the upper portion of which is offset outwardly a substantial distance so as to provide a restricted lower compartment and an expanded upper compartment adapted to receive and hold liquid displaced from said lower compartment, whereby an article floating in said lower compartment will be held by the wall thereof in spaced relation to the wall of said upper compartment, and means in the upper por-

tion of said lower compartment adapted to separate the freely floating articles into groups.

7. An article bath, comprising, a container for the article having a vertical wall the upper portion of which is offset outwardly a substantial distance so as to provide a restricted lower compartment and an expanded upper compartment adapted to receive and hold liquid displaced from said lower compartment, whereby an article floating in said lower compartment will be held by the wall thereof in spaced relation to the wall of said upper compartment, means in the upper portion of said lower compartment adapted to separate the freely floating articles into groups, a cover for said container, and means on said cover adapted to submerge the articles.

8. An article bath, comprising, a container for the article having a lower restricted portion adapted to contain articles submerged in a liquid therein, and an upper expanded portion in which the articles when freely floating, will be spaced from the side walls thereof.

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