

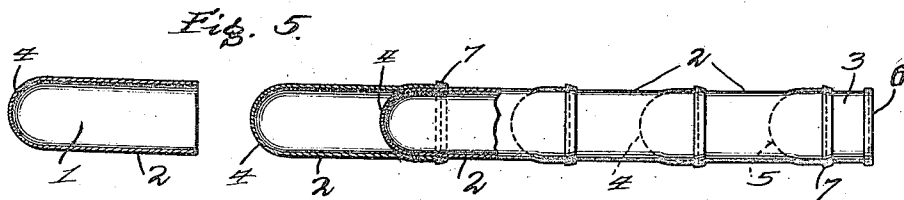
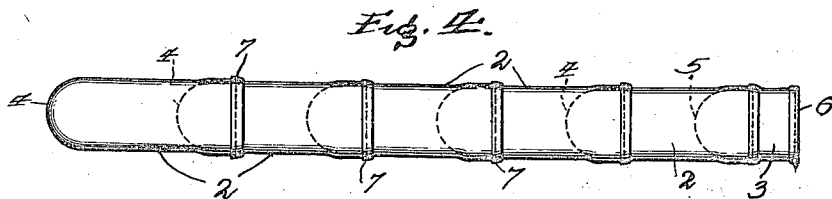
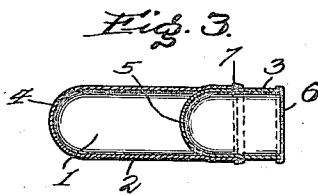
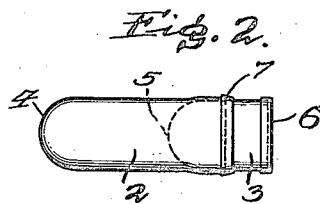
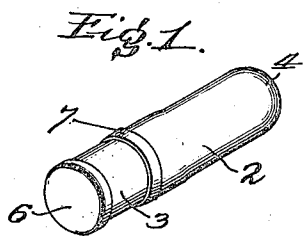
Sept. 30, 1924.

L. W. CYRENIUS

1,510,260

CAPSULE

Filed June 30, 1921



Inventor
L.W. Cyrenius,

By *C.F. Goepel,*
Attorney.

UNITED STATES PATENT OFFICE.

LLOYD W. CYRENIUS, OF NEW YORK, N.

CAPSULE.

Application filed June 30, 1921. Serial No. 481,684.

To all whom it may concern:

Be it known that LLOYD W. CYRENIUS, a citizen of the United States, residing at New York, in the county of New York and State of New York, has invented new and useful Improvements in Capsules, of which the following is a specification.

The present invention relates to improvements in capsules or containers for medicaments and more particularly the invention refers to certain improvements in capsules or the like by which the capsule is sealed and the contents thereof hermetically enclosed to avoid the possibility of contamination.

Another object of the invention is to provide an improved capsule of gelatine or other construction in which the contents will be kept sterile and which is of a construction to admit of the adding thereto of a number of the capsule elements to form a series of interconnecting compartments adapted to contain graduated doses and for this purpose the device will be found useful in the administration of such medicaments as novocaine and the like.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views,

Fig. 1 is a perspective view of an improved capsule constructed according to the present invention;

Fig. 2 is a side view thereof;

Fig. 3 is a longitudinal sectional view therethrough;

Fig. 4 is a plan view of a built up series of the capsule elements; and

Fig. 5 is a similar view showing a portion of the device broken away and one of the capsule bodies detached.

Referring more particularly to the drawings, in Figs. 1, 2 and 3, I have illustrated a form of the invention in which a single compartment 1 is furnished for but one dose of the medicament which is filled therein through the mouth of the gelatine body 2 before the cap 3 is put in place. The gelatine body 2 is of a construction and form corresponding substantially to one of the complementary parts of capsules as now constructed, except that in most instances the

body 2 will be of a greater length in order to hold the desired dose. The end wall 4 is rounded or constructed on a section of a sphere as is usual in capsules, the other end being left open.

As capsules are at present constructed, a second gelatine body similar to the body 2 is used having an open mouth fitted within or about the open mouth of said body 2 and cooperating therewith to provide an inner chamber of sufficient size to accommodate the dose. Unlike this customary construction, the cap piece 3 is of a relatively inferior length as compared with the body 2 and is formed with a rounded or spherical closed end wall 5 adapted to be fitted within the open mouth of the capsule body 2 and to have a tight frictional fit therein to effectively hold the cap piece in place. The curvature of the end wall 5 will guide the cap piece into the mouth of the body and desirably a slight extension, such as indicated in Fig. 3, will take place in the mouth of the body 2 to afford a better gripping action of the body on the cap piece. The cap piece 3 is also preferably made of gelatine and is hollow inside. After the cap piece 3 is in place, the outer open end thereof is preferably sealed over by a gelatin layer 6 or other suitable material to prevent the entrance of foreign matter into the hollow interior of the cap piece which might make the appearance of the article unsanitary. Furthermore a coating or annular joint of gelatin or some other sealing substance is placed about the mouth of the body 2 at the meeting point therewith of the cap piece 3. The function of this joint is to hermetically seal the capsule body and to avoid the entrance of foreign materials or harmful bacteria which would interfere with the sterile condition of the medicament within, and to hold the parts together.

Referring more particularly to Figs. 4 and 5, a number of the bodies 2 are shown fitted in series with the rounded ends 4 projecting into the mouths of adjacent bodies substantially the same distance as the cap piece. Each of the bodies is sealed by a ring 7 of gelatin or the like. Such a construction provides a series of compartments or containing chambers in which successive doses may be placed and all held in an integral unitary containing capsule. If desired, bodies may be slipped upon one another to greater or less extent in order that the com-

partments be of varying size. This is desirable especially where graduated doses for instance novocaine, are to be taken or administered; or the gelatine bodies 2 themselves may be made of variable lengths in order to secure a series of progressively larger or smaller compartments. The last body in the series is of course closed by a cap piece 3 which is sealed over as to its end and joint as heretofore described.

By the building up of a compartmented capsule as shown in Figs. 4 and 5, a number of doses may be hermetically housed in a single article and cap pieces are dispensed with for all of the bodies except the last in the series, thus economizing to a large extent in the matter of material and making it possible to commercially put up medications at lower cost. The gelatine bodies 2 are broken off from the left side of the built up capsule, Fig. 5 showing the first in the series to have been removed. In like manner the remaining bodies are detached from time to time until the whole is consumed, the last dose for instance being procured by the removal of the cap piece 3. Of course the order may be reversed and the cap piece 3 initially removed thus progressing from right to left as shown in Figs. 4 and 5, but this is not believed to be as desirable an arrangement, as the open ends of the bodies from which a dose has just been delivered are apt to form pockets for foreign matter and contamination and on the whole the sanitary purpose of the article will not be so well subserved. The annular coating 7 may with advantage be a solution of celluloid as this material is very effective in its adherence to gelatine and will unite and incorporate the parts very closely, and it moreover possesses advantages in its resistance to climatic and atmospheric conditions and it is impervious to water, moisture and most foreign substances.

It is obvious that various changes and modifications may be made in the details of construction and design of the above speci-

cally described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claims.

What is claimed is:

1. A package containing a plurality of gelatinous hollow bodies, each closed at one end and having an enlarged diameter at its open end extending for a portion of the length of the hollow body, said hollow bodies being nested in series with the closed ends of the bodies fitting in the enlarged open ends of adjacent bodies to close the bodies throughout the series, and a closure member for the last body of the series.

2. A package containing a plurality of gelatinous hollow bodies, each closed at one end and open at its other end and having an enlarged diameter thereat extending for a portion of the length of the hollow body, said hollow bodies being adapted to be interfitted with the closed end of one body in the open enlarged end of the adjacent body to close said bodies one with the other throughout the series, a hollow gelatinous plug having a closed end and fitting thereat in the open end of the last body of the series for closing the same, and a closure for the open end of said plug.

3. A package containing a plurality of gelatinous hollow bodies closed at one end and open at their other ends and enlarged thereat for interfitting with the closed ends in the enlarged ends throughout the series for closing the hollow bodies one with the other, a hollow gelatinous plug having a closed end fitting in the open end of the last hollow body of the series, a closure for the open end of said plug, and a layer of sealing material arranged between the contacting surfaces of said bodies, plug and closure for sealing the interiors of the same.

In testimony that I claim the foregoing as my invention, I have signed my name hereunder.

LLOYD W. CYRENIUS.