

No. 704,758.

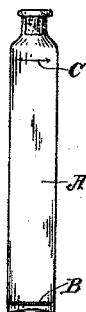
Patented July 15, 1902.

W. C. RILEY.

PROCESS OF STERILIZING AND PRESERVING COCAINE.

(Application filed Mar. 2, 1901.)

(No Model.)



Witnesses,

G. H. H. H. H.
J. F. Elschek

Inventor,

William C. Riley
By Duway Strong & Co.
attys.

UNITED STATES PATENT OFFICE.

WILLIAM C. RILEY, OF SAN FRANCISCO, CALIFORNIA.

PROCESS OF STERILIZING AND PRESERVING COCAINE.

SPECIFICATION forming part of Letters Patent No. 704,758, dated July 15, 1902.

Application filed March 2, 1901. Serial No. 49,580. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM C. RILEY, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Processes of Sterilization and Preservation of Cocaine; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an improved means of sterilizing and preserving cocaine compounds such as are used to produce anesthesia in surgical operations.

The value of cocaine as an anesthetic is well known; but the many dangers coupled with its use have also been well recognized and generally feared.

Of late much attention has been attracted to the success under certain circumstances of spinal anesthesia or the injection of a solution of cocaine into the subarachnoid space or passage. The great danger in injections of this character is sepsis. This can only be prevented by being surgically clean or aseptic, and every precaution must be taken by the operator to have his hands, instruments, and, above all, the cocaine, thoroughly sterilized. In many cases where such injections have been made there have been observed an undesired class of symptoms, such as nausea, vomiting, headaches, rapidity of pulse, cramps of the limbs, &c. Such symptoms, as well as more serious complications, are known to follow the use of cocaine which is other than sterile and fresh. The difficulty has been to get the cocaine fresh and sterile and to maintain it in such condition. Heretofore all processes aiming to attain this end have, as far as I am aware, either caused a deterioration of the peculiar qualities of cocaine or have failed to accomplish perfect sterility, or when the latter has been obtained it has been by the heating of a solution which rapidly deteriorates, soon becomes old, and changes its form in so far as to contain substances poisonous to the system.

My invention is in the direction of rendering the cocaine sterile without in any way altering its form and at the same time permitting this sterile product to be kept unimpaired an indefinite period.

The accompanying drawing illustrates a vial or tube suitable for carrying out my invention.

In said drawing, A is a vial or suitable container in which a proper quantity of sterilized cocaine, as B, is placed.

C represents a mark or graduation on the vial or container. When the seal is broken and the vial filled to the mark C with sterilized water or other suitable solvent, a solution of the proper strength and absolutely fresh is instantly ready for use by the operator.

My process is as follows: Any suitable vial or tube, as A, is taken, thoroughly cleaned and dried, and then brought to an almost red heat, as in a Bunsen gas-flame. It is allowed to cool sufficiently for convenient handling and an amount of previously-dried powdered muriate of cocaine placed therein. The heating of the vial is an essential step in the process of sterilization, for my product can only be rendered and kept sterile by having the containing-receptacle absolutely sterile. The mouth of the vial or tube is then plugged with freshly-dry sterilized absorbent cotton or other pervious material (The cotton may be sterilized by subjecting it to a heat of about 160° centigrade.) These plugged vials are next placed in a dry sterilizer or oven of any suitable form. No particular oven is necessary. The oven of an ordinary stove would serve the purpose, being careful to regulate the temperature, as herein specified. The heat in the oven is gradually raised during about fifteen minutes to approximately 145° centigrade and then maintained thereat for ten minutes longer, more or less. The oven is then allowed to cool to a point where the vials may be conveniently handled. This cooling takes about fifteen minutes. The vials are then removed, the cotton plugs withdrawn, and the openings hermetically sealed. This seal may be by a suitable rubber stopple or by drawing out the end of the vial in a gas-flame. I prefer to seal them, however, by means of an ordinary cork which has been immersed in a mixture of about equal parts of yellow wax, paraffin, and rosin melted and maintained at a temperature of about 170° centigrade.

The object of the cotton plugs is to take up

all moisture in the vial and to prevent condensation, for any moisture is fatal to the preservative qualities of the cocaine.

As to the vials used I prefer to have them provided with a graduated mark, as E, thereon. The amount of cocaine that I put in each vial is sufficient to make a two-per-cent. solution when the vial is subsequently filled to the graduated mark.

I have found by experience that muriate of cocaine so prepared is absolutely sterile and, moreover, is not injured by such sterilization and maintains its peculiar anesthetic properties an indefinite length of time. Thus I am always able by simply breaking the seal and filling the vial to the mark with sterile water to have an absolutely-fresh solution.

Where cocaine thus prepared has been used, the occurrence of the symptoms previously referred to as "headache," &c., have been notably less frequent.

The value of the invention is apparent when considered, for example, in connection with army surgery. Hospital facilities in the field are of the most limited character, and heretofore it has not been possible to administer cocaine for very lack of facilities for preparing it; but with these little sealed and graduated vials and a few drops of sterilized water a solution can be prepared anywhere and at any time and, moreover, can be prepared instantly and without fear or possibility of mistake as to the proper strength of the so-

lution. It is as essential to have proportions observed in the preparations of the solution as it is to have the cocaine sterile.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The method of preparing and preserving cocaine, consisting in placing the dried cocaine in the vial or container; plugging the mouth of the vial or container with dry absorbent material, gradually heating for about fifteen (15) minutes or until the heat reaches approximately 145° centigrade; removing the absorbent plugs; and, finally, hermetically sealing the mouth of the vial or container.

2. The method of preparing and preserving cocaine consisting, essentially, in placing dry cocaine in a receptacle and plugging the mouth of the receptacle with dry sterilized absorbent material; then gradually heating the receptacle to a temperature approximating 145° centigrade (the absorbent plugs taking up any moisture, and preventing condensation in the receptacle;) then removing the absorbent material; and finally, hermetically sealing the receptacle.

In witness whereof I have hereunto set my hand.

WILLIAM C. RILEY.

Witnesses:

S. H. NOURSE,

JESSIE C. BRODIE.