

No. 686,978.

Patented Nov. 19, 1901.

K. KIEFER.
PROCESS OF CRYSTALLIZATION.

(Application filed Aug. 1, 1901.)

(No Model.)

FIG. 1.

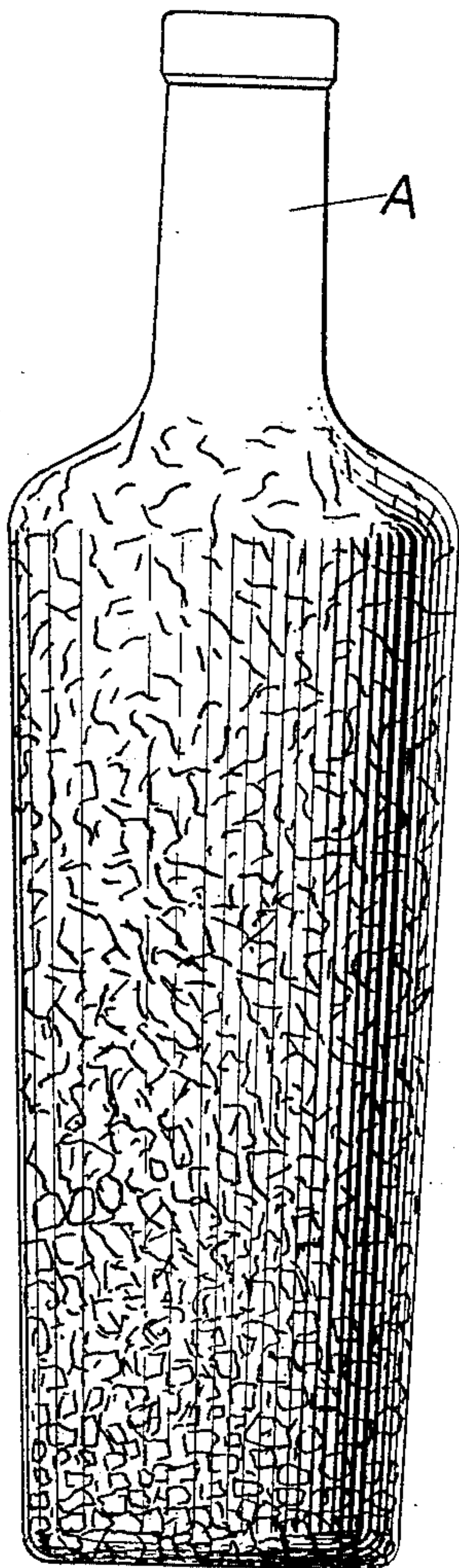
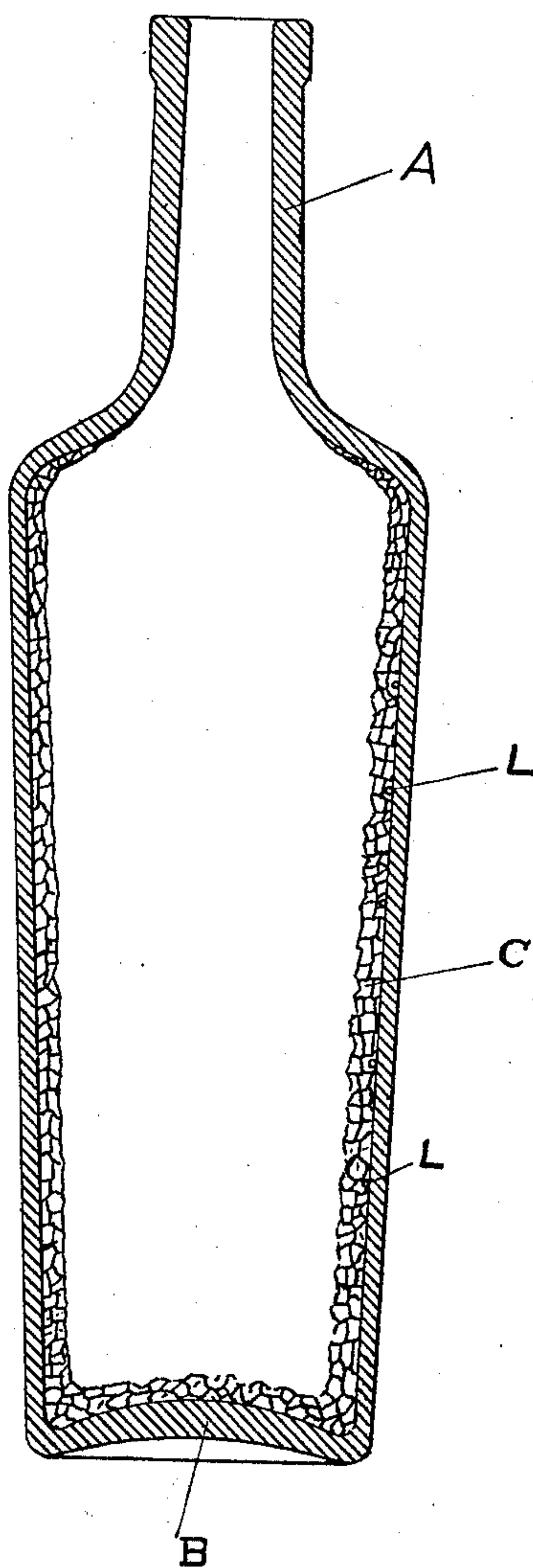


FIG. 2.



WITNESSES:

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KARL KIEFER, OF CINCINNATI, OHIO.

PROCESS OF CRYSTALLIZATION.

SPECIFICATION forming part of Letters Patent No. 686,978, dated November 19, 1901.

Original application filed April 18, 1901, Serial No. 56,411. Divided and this application filed August 1, 1901. Serial No. 70,549. (No specimens.)

To all whom it may concern:

Be it known that I, KARL KIEFER, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Crystallization Process; and I hereby declare that the following is a clear and exact description of the invention, which will enable others skilled in the art to which it appertains to use the same.

This invention has been described and claimed in my application for "Process of crystallization" filed April 18, 1901, Serial No. 56,411, and divided therefrom by request of examiner.

The invention relates to the production of a thin coat of sugar crystals adhering to the inner walls of glass bottles, which may also be filled with liquor.

Figure 1 is a view of a bottle containing the crystallization. Fig. 2 is a vertical cross-section through such a bottle.

Heretofore crystals of that kind have been produced by oversaturating a hot saccharine liquid and letting it crystallize during cooling. By inclining the bottles the depositing crystals were given an opportunity to settle on the sides, while at the same time the bottles were frequently turned. A good and even crystallization, however, could not have been produced, as it was impossible to predetermine those places where crystals should be formed. Therefore, and as it is undesirable to have an irregular coat of crystals, scraping the sugar by mechanical means had to be resorted to in this production of crystals, which process naturally was costly and tedious.

It is a well-known principle that the crystallization will start more easily if rough surfaces are contained within a saccharine liquid. Upon the latter principle my process is based, together with some manipulations and steps, as herein set forth.

To carry my invention into effect, I rinse the bottle with a heavy cold syrup of the density of about 36° Baumé, drain the bottle thoroughly of all superfluous "rinsing-syrup," and then introduce into the bottle a certain amount of sugar crystals of a predetermined size, preferably the size which is known as

"common granulated sugar." To introduce the sugar crystals, it is preferable to use a funnel. Now turn the bottle quickly, so that the whole interior of the bottle is covered by those crystals, as shown in Fig. 2, letter C. The crystals will stick to the sides of the bottle, as the cold syrup is of a gluey nature. In experimenting I soon find out the quantities of sugar crystals necessary to cover all walls without leaving any large apertures. If I would now fill these bottles with an alcoholic liquid with saccharine contents, but of less specific gravity than that of the syrup first introduced, which served to glue the sugar crystals to the bottle, the effect of pouring in such a liquid upon the syrup previously put into the bottle would be that the heavier syrup would sink down into the lighter alcoholic liquid and would drag down with it all the crystals which I have introduced into the bottle and which I intended to glue to the walls as starters for the subsequent crystallization. In order to make possible the introduction of alcoholic liquids in a bottle, another important step is therefore necessary. This step is drying partly or altogether the rinsing-syrup. The effect of the drying upon the rinsing-syrup is a quick crystallization of the latter, which securely fastens the introduced sugar crystals to the walls of the bottles. The drying should be preferably by cold air, as the rinsing-syrup would lose its consistency and gluey nature when heating. I will remark here that cavities L, Fig. 2, are formed by part of the crystals when drying them to the wall, which hold small bubbles of air imprisoned as long as the crystallization lasts. They neither detract from nor add to the appearance of the crystallization, but are a sure mark by which my crystallization can be recognized. The drying of the rinsing-syrup may be effected by blowing the slightly-compressed and dry air (of about 75° Fahrenheit) through a long and narrow tube into the interior of the bottle. By which method it is done is immaterial here. It is sufficient to know that through this drying the rinsing-syrup makes a secure connection between the starting crystals and the interior of the bottle-wall. Bottles so treated can now be filled with a liquid of lighter specific gravity than syrup—namely, alcoholic liq-

uids. It is necessary, however, that this liquid should be saturated in regard to the contents of sugar. It may be preferable that the liquid should be oversaturated, which facilitates the subsequent crystallization of the liquid and which will produce by this after-crystallization an evening off of the starting crystals which were previously in a broken condition, the natural process of crystallization leaning to this accomplishment. It is permissible that even apertures should exist between the introduced sugar crystals. The aftercrystallization of the alcoholic liquid will soon close these interstices by reason of the mentioned natural tendency of crystallizations. I will mention, however, that the liquor to be filled in the bottle should never be so oversaturated that a sudden crystallization within the liquid itself could take place, which fact would be indicated by the liquor getting cloudy. To prevent this harmful crystallization, the liquor should be filled as warm as possible without, however, redissolving the dried rinsing-syrup.

25 I do not want to limit myself to the exact manipulations as given nor to the exact compositions and temperatures of materials. The data given I consider, however, preferable to attain the purpose.

30 Having described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

1. A process of producing crystals within the interior of bottles filled with liquor, consisting of (a) rinsing out the bottle with a saccharine solution of heavy consistency: (b) introducing the desired amount of starting crystals: (c) directing the starting crystals so as to cover the desired places within the bottles: (d) drying the rinsing-syrup and therewith fastening the starting crystals to the inside of the bottles: (e) filling the bottles with the alcoholic and saccharine solution, saturated or oversaturated in regard to its saccharine contents.

2. A process of producing crystals within the interior of bottles consisting of (a) rinsing out the bottles with a saccharine solution of heavy consistency: (b) introducing the desired amount of starting crystals: (c) directing the starting crystals so as to cover the desired places within the bottles: (d) drying the rinsing-syrup and therewith securely fastening the starting crystals to the inside of the bottles.

KARL KIEFER.

Witnesses:

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