

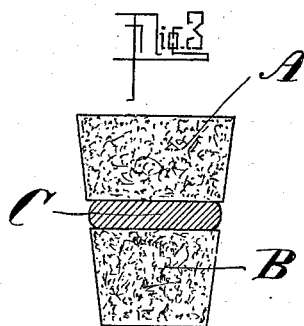
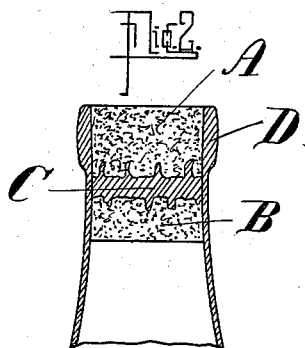
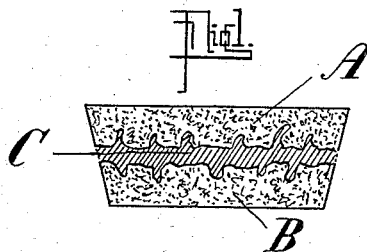
No. 650,021.

Patented May 22, 1900.

W. NÄGELI.
CLOSURE FOR BOTTLES.

(Application filed Sept. 17, 1898.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

WALTER NÄGELI, OF MOMBACH, GERMANY.

CLOSURE FOR BOTTLES.

SPECIFICATION forming part of Letters Patent No. 650,021, dated May 22, 1900.

Application filed September 17, 1898. Serial No. 691,222. (No model.)

To all whom it may concern:

Be it known that I, WALTER NÄGELI, chemist, doctor of philosophy, residing at Mombach, near Mayence, in the Grand Duchy of Hesse, Germany, have invented new and useful Improvements in Closures for Bottles, (for which I have applied for patents in Germany, No. 4,339, III/64, dated February 28, 1898; in France, No. 266,253, dated June 1, 1898, and in Spain, dated June 11, 1898,) of which the following is a specification.

The hermetic closure of bottles and like receptacles, in particular for transport to tropical climates and for containing aerated liquids, is subject to great difficulties on account of the fact that even the best kinds of cork are liable to dry up. In consequence thereof gases escape and the contents of the bottle become moldy in consequence of the penetration of air and germs into the same, causing deterioration of the contents through oxidation. It has been endeavored to prevent such drying by coating the corks and also saturating them with impervious materials, such as paraffin and the like. The outer coatings, such as sealing-wax, are liable to chip off very readily, do not adhere firmly, and are ineffective against internal pressure. When coating internally or saturating, as far as this is possible, particles of the material used always fall into the interior of the bottle on closing, and the liquid contents in splashing about also loosen the coating. According to my present invention I obviate these defects by dividing the cork into two parts and introducing between these a layer of material which is itself impervious and is caused, either by means of the pressure employed in forcing in the cork or by the internal pressure exerted by the contents of the bottle and in some cases by the heat employed for sterilizing the contents, to penetrate to such an extent into the pores of the cork, in particular the upper part, as to render this impermeable to air or gases. The conditions required for this mode of airtight closure, which can be effected with comparatively-cheap kinds of cork, consist in that the lower part of the cork must fit sufficiently tight for preventing the impervious compound from penetrating into the bottle and that the said part must be of sufficient size and strength to admit of its being driven into the bottle by

itself, so as to fit tightly therein and to be drawn out by a corkscrew. The upper part, on the other hand, must fit sufficiently tight to prevent the intermediate material from being forced past it and to afford sufficient protection against external influences. For the said impervious material may be employed vaseline, paraffin, gutta-percha, wax, sealing-wax, fine-grained powder, or mixtures of these. These materials can be poured in or be introduced in the form of powder. Those substances that are solid at ordinary temperatures are rendered sufficiently soft by heating to enable them to penetrate into the pores, so that even soft metals or alloys can be used.

The invention is shown in the accompanying drawings, in which—

Figure 1 shows a cork in section. Fig. 2 shows a cork in section within the bottle-neck. Fig. 3 is a sectional view of another form of the invention.

In the drawings, A is the upper cork or cork-section, B the lower part of the cork, and C the intermediate layer of impervious material.

A practical way of carrying out the invention also consists in introducing a disk of paper or linen saturated with the material, such as wax and the like, between the two parts of the cork.

The choice of the material used and the arrangement employed must be determined according to the nature of the bottles or other receptacles to be closed.

If simply cold liquids, such as wine or beer, are to be inclosed, the impervious material chosen must be such that it is more or less soft at ordinary temperatures, so as to be capable of being pressed into the pores of the cork. It is advisable to connect the two parts of the cork by a wire, on the one hand, to prevent them from separating and, on the other hand, to prevent the lower cork from being pushed into the bottle on opening by means of a corkscrew and also to enable both parts to be drawn out together. This connection also enables the two parts of the cork to be pressed against each other by means of the wire, thereby pressing the intermediate substance more closely against and into the cork and against the neck of the bottle.

If the contents of the bottles are to be sterilized after the closing—that is to say,

heated—the two parts of the cork can also be connected by wire in order to prevent them from separating.

By the aid of the new means of closing bottles aerated liquids can also be sterilized (pasteurized) without causing escape of gas. The bottles are wired in the usual way after closing, or the cork is held in by means of a clamp. On heating the lower cork is forced by the increasing gaseous pressure inside the bottle toward the upper cork—the more so the greater is the heat applied. In the same proportion the intermediate material is pressed more firmly against the cork into the pores thereof and against the glass.

With this improved means of hermetic closure other more porous substances than cork material may be used for the corks. In particular the upper cork may be made of wood, linoleum compounds, and the like, which are rendered impervious by the above-described means.

The intermediate layer of material may have an antiseptic medium mixed with it, or

the upper cork can be saturated with such a medium, which would in that case not affect the flavor of the contents.

Having thus described and ascertained the nature of my said invention, I declare that what I claim, and desire to secure by Letters Patent, is—

A method of closing bottles consisting in introducing into the bottle-mouth two separate cork-sections having between them an impervious material capable of entering the pores of the cork or the pores or crevices between the same and the walls of the bottle-mouth, and subjecting the cork to heat and pressure to make the impervious material enter the pores of the cork, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WALTER NÄGELI.

Witnesses:

KARL EICHENLAUB,
CHRIST. GOTTSOHN.