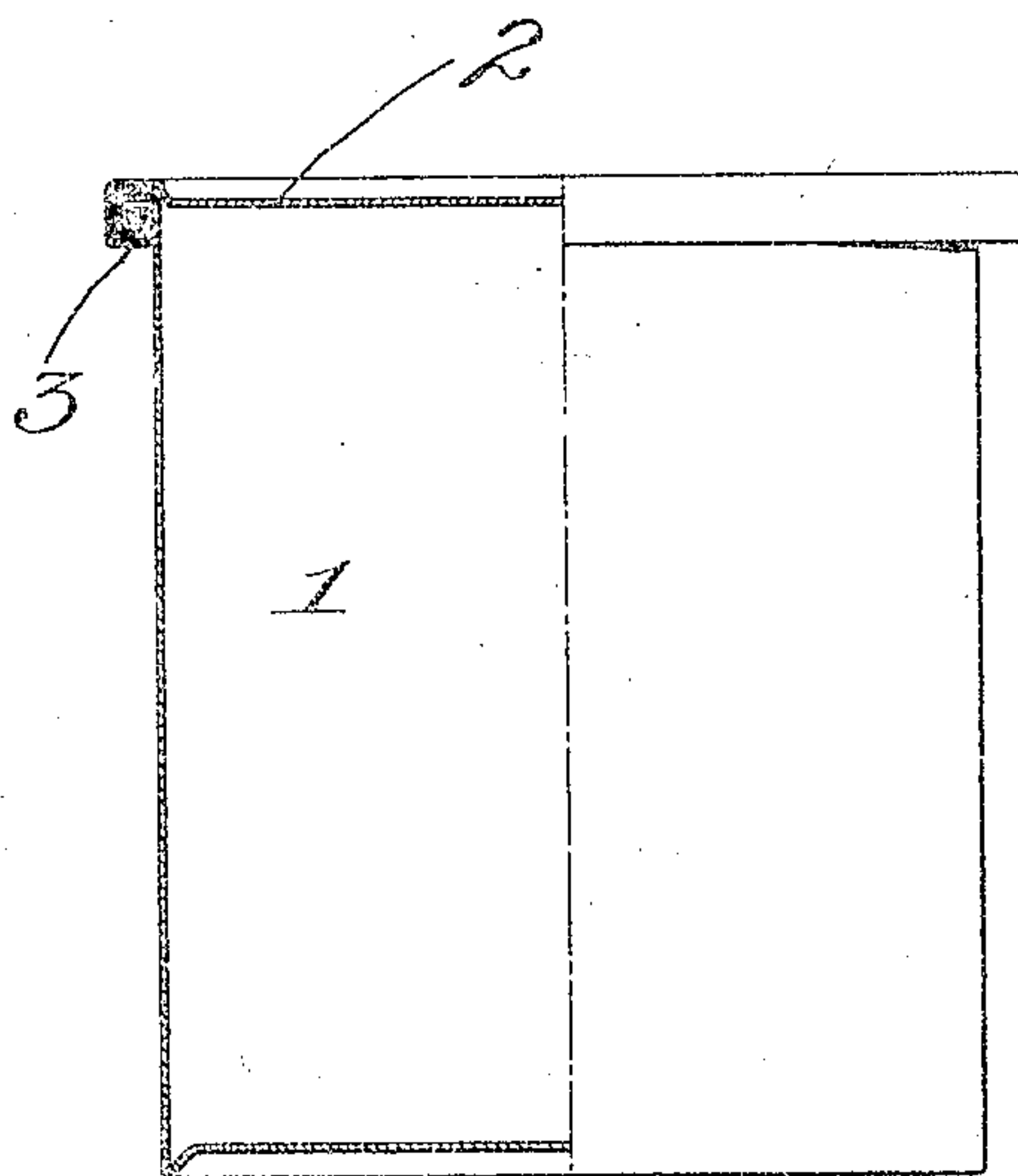


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METHOD OF SEALING FRUIT CANS AND THE LIKE.  
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Patented June 15, 1909.



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## METHOD OF SEALING FRUIT-CANS AND THE LIKE.

No. 925,223.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed February 20, 1906. Serial No. 302,123.

*To all whom it may concern:*

Be it known that I, VLADIMIR PLINATUS, a subject of the Emperor of Russia, residing at St. Petersburg, Russia, have invented certain new and useful Improvements in Methods of Sealing Fruit-Cans and the Like, of which the following is a specification.

This invention relates to a method for making the joints of preserved food tins and the like both by mechanical and chemical means.

The joint making arrangements in present use are purely mechanical, that is to say by means of india-rubber or fibrous material, and do not last, because indiarubber in spite of and partially in consequence of the pressure applied thereto becomes in time brittle and cracks thus permitting air to enter. This permeability increases with an increase of temperature, so that heating the caoutchouc and indiarubber ring, when securing the same to the lid of the preserved food tin, and later of the closed tin itself, only assists the penetration of the air. The destruction of the indiarubber is also accelerated if it comes in contact with oils. On the other hand fiber as a non-elastic and brittle material is less suitable than caoutchouc for making a tight joint by mechanical means.

Now this improved method consists essentially in the joint being made, partly by mechanical means (for instance, by the elasticity of the joint making material or by the use of pressure), and partly by a chemical process, in which by the heating of the tins albuminous substances are caused to coagulate. By this coagulation and in consequence of the increase of volume thereby resulting, the joint making material completely fills up the space between the top or closure and the top of the can, thus forming a permanent hermetic joint.

Referring to the drawing which is a view partly in section of a can having a closure made in accordance with my invention, 1 denotes the can body, 2 the top or closure plate, and 3 the joint making material arranged in the fold between the can body and the top or closure plate.

The carrying out of this improved process is generally based on a joint making material containing the albuminous substances and made on a manufacturing scale, but the joint may also be formed by the albuminous substances alone without the use of an intermediate material holding or carrying the same,

by placing an albuminous solution on the joints or washers (for instance, in joints of tins provided with a fold) so that when it has hardened in the air it forms of itself a joint in the form of a ring or the like, adhering to the respective joint surfaces of the tins. Usually, however, the albuminous substances are used to impregnate a carrier or foundation material, i. e. such a substance as will, in addition to giving the necessary strength, form in a chemical sense a completely organized body, and is chemically indifferent to the substances contained in the tins.

In practice it has been found that cotton (in the form of loose spun fiber or a fabric) or cellulose will serve as a carrier for the albuminous substances. Rag pulp (paper material from rags) may also be used for forming the foundation material which is to be impregnated. Now in forming the joint making material from such foundation material and the albuminous substances, it is preferable to treat the foundation material before its impregnation with the albuminous substances with concentrated soda or potash lye, then to wash it and if desired also neutralize it with acid, and then again wash it, in fact mercerize it. In practice the material (which of course must be able to withstand a treatment with concentrated soda lye of from 25-40° Baumé) is first exposed to the action of the concentrated soda lye, with the addition of glycerin, if desired for some minutes; then squeezed; then washed, then neutralized with acid and finally again washed. An intermediate treatment with any suitable drying oil such, for example, as linseed oil which is treated with borate of manganese, is also advisable. The foundation material is impregnated with this drying oil, then thoroughly squeezed and hung up until the material has become thoroughly dry. After these various preliminary steps which, however, are not indispensably necessary and may also be omitted, the foundation material is impregnated with the albuminous substances. For this purpose white of egg, blood or egg albumen, or a suitable mixture of these substances, may be employed. Casein is also adapted for the impregnation either alone or mixed with the above mentioned substances.

It may be mentioned that for certain kinds of preserves washer rings must not be impregnated with siccative varnish made by treatment with borate of manganese. On



the other hand in order to make cheaper rings the troublesome operation of treating them with potash or soda lye may be omitted. The simplest form of this improved process consists as already indicated in cotton being directly impregnated with albumen without any intermediate treatment.

The joint making rings are cut out of the impregnated sheets, or are stamped out with a stamping knife specially constructed therefor. Yarn which has been impregnated with albumen, and woven into a fabric (for example, into a tubular material) and again impregnated with albumen may also be employed. Soda or sulfite cellulose, rag pulp, powdered cork or the like may be treated in a rag engine in the manner hereinbefore described, dried, pressed and stamped.

The use of cotton and especially cellulose prepared with albumen or albuminous substances, in contrast to the methods previously adopted, which rest on a purely mechanical basis, makes a joint in the most permanent manner by chemical and mechanical means.

The albumen present in the material changes its chemical condition by coagulation when heated and by reason of its change of volume, and also by reason of a certain degree of elasticity, and also by reason of its adhesive power makes a sure joint for the tin, all the pores being filled up. The joint

is extraordinarily durable, and greatly exceeds joints formed by caoutchouc.

What I claim as my invention, and desire to secure by patent is:

1. A method of making a tight joint for receptacles for preserved food and the like, consisting in placing an albuminous substance between the receptacle and its cover, closing the joint between said parts to completely envelop said substance in said joint, and heating the parts to cause said substance to coagulate and increase in volume, and to penetrate into the interstices between the parts.

2. A method of making a tight joint for receptacles for preserved food and the like, consisting in placing a fiber foundation impregnated with an albuminous substance between the receptacle and its cover, closing the joint between said parts to completely envelop said substance in said joint, and heating the parts to cause said substance to coagulate and increase in volume and to penetrate into the interstices between the parts.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WLADIMIR PLINATUS.

Witnesses:

HERM BOCHINGER,  
KARL BÖHRINGER.