J. A. JONES.

VESSEL SEAL.

APPLICATION FILED OCT. 16, 1909.

1,110,138. Patented Sept. 8, 1914.

Fig. 2

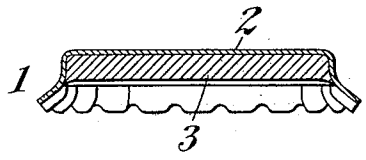
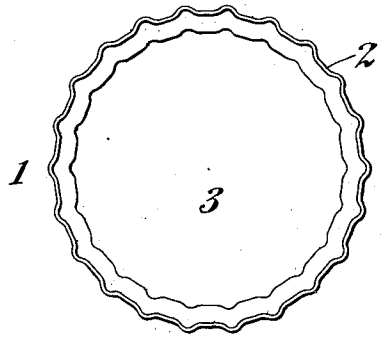


Fig. 1



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UNITED STATES PATENT OFFICE.

JOHN A. JONES, OF NEW YORK, N. Y.

VESSEL-SEAL.

1,110,138. Specification of Letters Patent. Patented Sept. 8, 1914.

Application filed October 16, 1909. Serial No. 522,941.

To all whom it may concern:

Be it known that I, JOHN A. JONES, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Vessel-Seals, of which the following is a specification.

This invention relates to vessel seals, and particularly to a vessel seal formed as a unitary article, which invention is disclosed in Letters Patent of Mexico, dated October 27th, 1908 and numbered 8,516; France, #395,950, dated November 4th, 1908; Spain, #44,304, dated January 16th, 1909; and Belgium, #211,762, dated November 6th, 1908.

The main object of the invention is to provide a device of this description having a metal or equivalent stiff cap adapted to engage the neck of a bottle or similar article and a sealing layer formed therein. This sealing layer may be of any material suitable for the purpose, either a single substance or a combination of two or more substances, and said substance or combination should be sufficiently plastic to permit its being formed or molded within said cap. When the sealing layer is composed of small particles of material united by a binder, as will usually be the case, the composition will be fed into the caps, formed or molded therein, subjected to pressure, and the binder set while the composition is under compression. Said composition is generally made up of particles of granules of cork coated with a binder. This composition is fed into metal shells, held under compression to form a sealing layer or disk, and the binder then set, in which case the sealing layer formed in said cap is a substantially homogeneous but soft, elastic and readily compressible body of solid gas-tight cork made up of granules permanently united by thin coatings of a binder that is substantially neutral in the presence of water, beer and similar beverages under all ordinary conditions of bottling, pasteurization and use, and capable of withstanding the temperature of pasteurization without being dissolved, disintegrated or distorted thereby, and substantially incapable of shrinkage under any ordinary conditions of temperature or use.

Bottle seals of the crown type as previously made have consisted of a metal cap adapted to engage a bottle neck and a sealing disk of cork wood inserted therein and insecurely held by friction or an adhesive. Cork disks, however, even of the best quality, are more or less porous, causing leakage of gas when used on bottles containing beer or aerated liquids. The porous nature of cork disks also necessitates the use of a layer of waxed paper or similar material between the cap and the cork to prevent corrosion of the metal. Such seals are also unduly expensive, it being necessary to use the best grades of cork wood to insure good results. Moreover, many operators, both hand and machine, have been necessary in cutting and sorting these disks, treating them to increase their pliability, cutting paper fillers therefor, and assembling these various independent parts in the metal shell, the result being an expensive closure. To increase the effectiveness of vessel seals and at the same time decrease the cost of production thereof, applicant has produced an article having a non-porous sealing layer formed or molded directly in the metal cap and preferably adhering thereto. This sealing layer may be of any material capable of sealing a bottle mouth, a preferred type being that in which granules of cork are united by a binder, said sealing layer being in such case non-porous, elastic, and capable of withstanding a considerable amount of heat and pressure, such as the heat of pasteurization and the pressure usually found in bottles containing carbonated beverages, and the binder being insoluble by and substantially neutral in the presence of water, beer or similar beverages.

In the drawings Figure 1 is an underside view of a vessel seal embodying my invention, and Fig. 2 is a section of the same.

In the drawings I have shown a unitary vessel seal, designated generally by 1, said seal consisting of an outer shell or cap 2 of any suitable form, and usually of metal, adapted to engage the neck of a bottle, and a molded or formed sealing layer 3 therein of any material suitable for sealing the mouth of a bottle or similar vessel. Good results have been obtained by the use for this purpose of a composition of granulated cork and a binder, and said binder may be any suitable for the purpose. The ingredients of this composition may be combined in varying proportions and under different

conditions to produce a sealing layer of sufficient elasticity to insure an effective closure for such vessel mouth. When the sealing layer is a composition of an adhesive nature, as will usually be the case, it is particularly favorable to the formation of a unitary seal, said composition being formed or molded directly in the cap and adhering thereto without the interposition of any additional member such as the paper necessary with porous cork disks.

A unitary seal as herein described possesses many advantages over the ordinary closure or any seal having the cap and the sealing layer made as separate articles requiring assembling. It is more effective, owing to the non-porous character of the formed sealing layer, and also because of the certainty that said sealing layer will be positively held in the cap, which is not the case with the loose or slightly cemented-in cork disk. The cost of production is also much less than in the case of articles heretofore used, as the sealing layer is ordinarily made of materials that are easily obtained and cheap, this being especially the case when granulated cork is employed. The binder, of which a very small amount is ordinarily employed, is also inexpensive. Another great saving arises out of the reduction of the number of operations necessary to produce the finished product.

No one has made, so far as I am aware, a complete vessel seal, consisting of a metal cap and a layer of sealing material—preferably composition cork such, for example, as described herein—formed in such cap; nor has any one made such a vessel seal with a sealing layer, whether of this or some other material, permanently united with the metal cap so that the seal, considered as a whole, is a unit and not a mere assemblage of independent elements; and these are important features of my invention.

A vessel seal such as herein described may be used for all purposes for which seals of large or small diameter have heretofore been employed, and on bottles containing beer, aerated liquids and other beverages, as well as on vessels containing liquids or commodities not containing gas pressure.

In forming my unitary seal, any metal or other stiff cap may be used that is adapted to engage a bottle neck. Within this cap is placed a portion of material capable of forming a seal for the mouth of a bottle and preferably adapted to adhere to the cap. Said sealing material is then formed in said cap as desired and subjected to further treatment, if necessary, to cause it to retain the desired form. When this sealing material is a composition of granulated cork and a binder of rubber the rubber is subjected to soft vulcanization while the sealing layer is held under compression. These operations may be carried out in the manner described in Patent #903,865, granted to me November 17th, 1908.

What I claim is:

1. A vessel seal, comprising a flanged metal cap having at its inner side a cavity constituting a mold space, and a molded layer of compressible and expansible solid sealing material formed under pressure in said cap and forced by said pressure into intimate union with the cap to form a unitary article.

2. A vessel seal, comprising a flanged metal cap having at its inner side a cavity constituting a mold space, and a molded layer of compressible and expansible solid composition sealing material formed under pressure in said cap and forced by said pressure into intimate union with the cap to form a unitary article.

3. A vessel seal, comprising a flanged metal cap having at its inner side a cavity constituting a mold space, and a molded layer of compressible and expansible solid composition cork formed under pressure in said cap and forced by said pressure into intimate union with the cap to form a unitary article.

4. A vessel seal, comprising a flanged metal cap having at its inner side a cavity constituting a mold space, and a layer of sealing composition molded in said cap under pressure and forced by said pressure into intimate union with the cap, said composition being a substantially homogeneous but soft elastic and readily compressible body of solid gas-tight cork made up of granules permanently united with one another and with the metal cap by thin coatings of a binder, said body being also substantially incapable of being dissolved, disintegrated or distorted by pasteurization.

5. A vessel seal, comprising a flanged metal cap having at its inner side a cavity constituting a mold space, and a layer of sealing composition molded in said cap under pressure and forced by said pressure into intimate union with the cap, said composition being a substantially homogeneous but soft elastic and readily compressible body of solid gas-tight cork made up of granules permanently united with one another and with the metal cap by thin coatings of a binder, said body being also substantially incapable of being dissolved, disintegrated or distorted by pasteurization and substantially incapable of shrinkage when in use.

6. A vessel seal, comprising a flanged metal cap having at its inner side a cavity constituting a mold space, and a disk of sealing composition molded in said cap under pressure and forced by said pressure into intimate union with the cap, said composition being a substantially homogeneous but

soft elastic and readily compressible body of solid gas-tight cork made up of granules permanently united by means of soft vulcanization by thin coatings of a rubber binder, said disk being also substantially incapable of being dissolved, disintegrated or distorted by pasteurization and being substantially incapable of shrinkage when in use.

Signed at New York, in the county of New York, and State of New York, this 14th day of October, A. D. 1909.

JOHN A. JONES.

Witnesses:
C. S. CHAMPION,
R. CHAMPION.