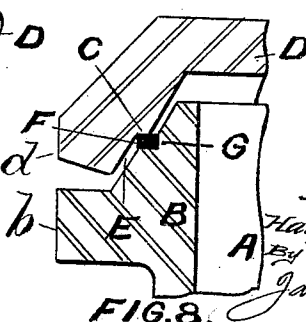
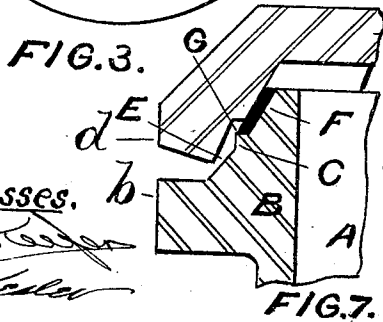
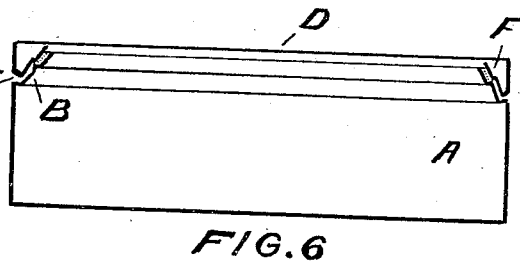
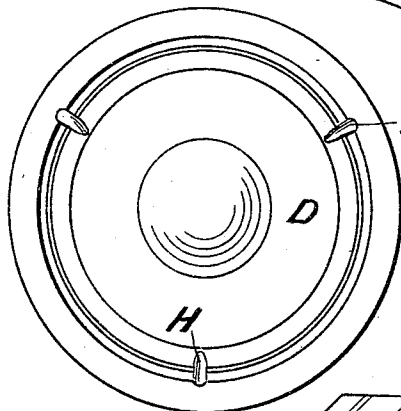
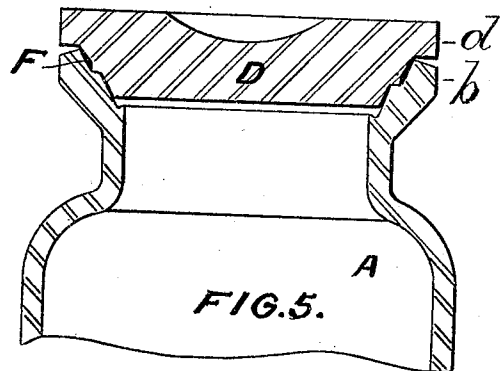
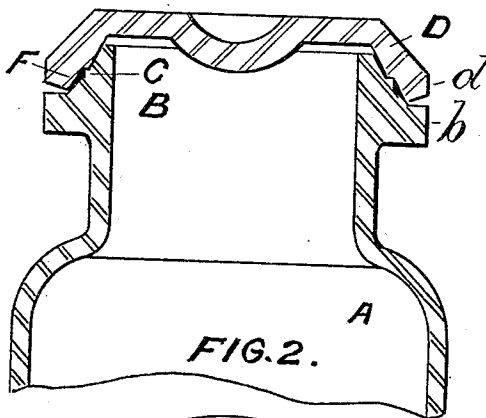
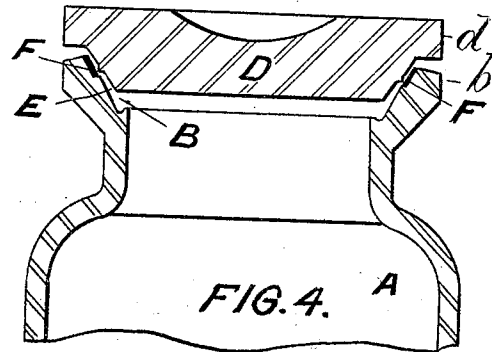
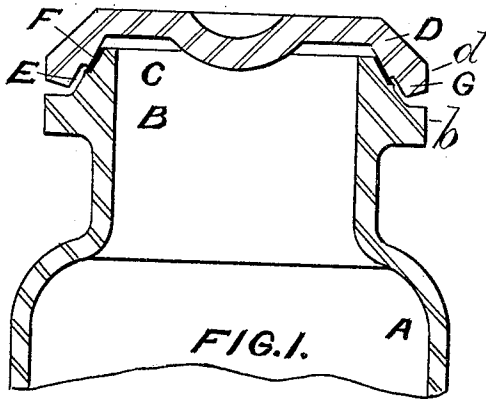


H. W. JOHNSON.  
 MEANS FOR STOPPERING OR SEALING BOTTLES OR OTHER RECEPTACLES.  
 APPLICATION FILED OCT. 23, 1909.

955,079.

Patented Apr. 12, 1910.



Witnesses.  
*[Signature]*  
*[Signature]*

Inventor  
 Harry W. Johnson  
 By *James L. Norris*  
*[Signature]*

# UNITED STATES PATENT OFFICE.

HARRY WILDAY JOHNSON, OF STOCKPORT, ENGLAND.

MEANS FOR STOPPERING OR SEALING BOTTLES OR OTHER RECEPTACLES.

955,079.

Specification of Letters Patent. Patented Apr. 12, 1910.

Application filed October 23, 1909. Serial No. 524,247.

*To all whom it may concern:*

Be it known that I, HARRY WILDAY JOHNSON, a British subject, residing at Cheadle Heath, Stockport, county of Chester, England, have invented certain new and useful Improvements in Means for Stoppering or Sealing Bottles or other Receptacles, of which the following is a specification.

This invention relates to bottles, glasses, jars, pots, tins, and other receptacles and is designed to provide improved means for hermetically stoppering or sealing such receptacles.

It consists essentially in forming around the mouth of the bottle or receptacle an inclined or conical portion provided with a ridge or groove and in providing a stopper of corresponding shape to fit over the same, a ring of cement adapted to melt and seal the vessel at a given temperature being placed between the ridge of the bottle mouth and the groove of the stopper or vice versa and the mouth or stopper being formed with one or more air slits to allow vapor to escape while the vessel is heated but which are subsequently sealed by the cement, when the bottle cools and a vacuum is formed therein.

The invention will be fully described in the accompanying drawings in which several forms of the invention are illustrated showing it applied to a bottle and sardine tin.

Figure 1 is a section of bottle mouth and stopper in position ready for sealing. Fig. 2, similar view showing bottle sealed. Fig. 3, underside plan of stopper. Fig. 4, section of bottle showing modified arrangement in position ready for sealing. Fig. 5, similar view showing bottle sealed. Fig. 6, section showing invention applied to sardine tin. Fig. 7, enlarged detail of stopper and mouth connection as shown in Fig. 1. Fig. 8, enlarged detail of modified connection of stopper and mouth.

As shown in Figs. 1 and 2 the mouth of the bottle A is formed with an upwardly inclined or tapered portion B forming a short truncated cone at the top of the bottle and a ridge C (or several ridges) are formed at a suitable distance (or distances) up the side of the cone B. A stopper D of any suitable material to cover the bottle A is constructed of a shape internally corresponding to that of the mouth of the bottle, and adapted to fit over it exactly with the exception that when the internal cone of the

stopper touches the top of the cone B of the bottle mouth a slight clearance is preferably allowed between the lower portion of the cone B and the stopper, to allow a space E for the sealing cement F to fill up as described below. The stopper D is provided with a groove or grooves G corresponding to and to receive the ridge or ridges C. In a modified arrangement as shown in Fig. 8 the recess or groove G is formed in the bottle mouth cone B and the ridge C in the stopper D.

When it is desired to seal the bottle A a ring of cement F preferably adapted to melt at a given temperature is placed on the ridge or in the groove on the bottle mouth and the stopper D is placed on top. The bottle is then heated to the temperature adapted to melt or soften the cement. The stopper then by its own weight or under the influence of a temporary clip or spring gently presses the cement F into the clearance space E between the mouth B and the stopper D, and when the temperature is lowered it solidifies and seals the bottle.

A vacuum is caused in the bottle A when it cools, and the external air pressure acts to press the stopper D on to the bottle mouth and also acts to press the cement up between them thus assisting to make a good joint.

For the purpose of allowing air or steam to escape from the bottle when it is heated while the cement F is softening or melting, one or more small slits H may be made in the side of the stopper D (see Fig. 3), or the slits may be made in the bottle mouth. These slits are sealed by the cement when the stopper has reached its seat after the melted cement has been pressed into the space between the mouth and stopper.

In a modified form of the invention as shown in Figs. 4 and 5 the mouth B of the bottle may be tapered downward and inward and the stopper D made to fit thereinto, but the form first described is preferable as it prevents any pieces of cement or the like falling into the bottle. If desired either or both the surfaces of the bottle mouth and stopper may be roughened to increase the grip of the cement.

The bottle and the stopper are preferably formed with flanges b, d which flanges are adapted to coincide but not quite to touch to allow of the insertion of a knife or the like to break the seal when it is desired to open the vessel. Or the faces of the flanges may

be made somewhat inclined to one another as shown so that the inner edges almost if not quite touch when the bottle is sealed.

In bottling, say, fruit, the fruit is placed in the bottles A and placed in the ordinary cooking tanks which are maintained at a given temperature. A ring of cement F adapted to melt slowly at the cooking temperature is inserted and the stopper placed in position. The cement is preferably adapted to be completely melted by the time the fruit is cooked. As the fruit is cooked the air and steam from the bottle passes away between the stopper D and bottle mouth B or through the air slits H and as the cement melts the stopper either by its own weight or with the aid of a spring gradually settles down and presses the cement into the space between it and the bottle mouth. When the fruit is cooked and the temperature removed the bottle is sealed. Or a cement may be employed adapted to melt slightly above the cooking temperature in which case after the fruit is cooked the temperature is raised sufficiently to melt the cement which then seals the bottle in the same manner as above described. If the air pressure between the stopper and bottle mouth is found to be too great so that it breaks the seal a sleeve of rubber or the like may be placed over the stopper and bottle neck when the bottle is cooking so as to prevent air passing back into the bottle between the two flanges *b* & *d*.

In Fig. 6 the invention is shown applied to a sardine tin, the joints between the lid and the body of the tin being made exactly as in Figs. 1 and 2.

The ring of cement F may be of any shape when placed in position. It may be inclined or conical as shown in Figs. 1 and 4 or it may be of square or rectangular section as shown in Fig. 8.

What I claim as my invention and desire to protect by Letters Patent is:—

1. The combination with a receptacle which has at its mouth a conical stepped surface, of a receptacle closure having a conical surface to fit over the first-named surface and correspondingly stepped, the lower portions of said conical surfaces being distant from one another to afford a clearance around the mouth of the bottle, and a

gasket which is originally placed between portions of the conical surfaces above the lower portions thereof and which has the properties of softening under heat and hardening when cool and when heated is forced by the pressure of the closure into the clearance and therein solidifies with air-tight sealing adhesion to the mutually adjacent surfaces.

2. The combination with a receptacle which has at its mouth an exteriorly formed conical stepped surface, of a receptacle closure having an interiorly formed conical surface to fit over the first-named surface and correspondingly stepped, the lower portions of said conical surface being distant from one another to afford a clearance around the mouth of the bottle, and a gasket which is originally placed between portions of the conical surfaces above the lower portions thereof and which has the properties of softening under heat and hardening when cool and when heated is forced by the pressure of the closure into the clearance and therein solidifies with air-tight sealing adhesion to the mutually adjacent surfaces.

3. The combination with a receptacle which has at its mouth a conical stepped surface, of a receptacle closure having a conical surface to fit over the first-named surface and correspondingly stepped, one of the conical surfaces being provided with air venting grooves, the lower portions of said conical portions being distant from one another to afford a clearance around the mouth of the bottle, and a gasket which is originally placed between portions of the conical surfaces above the lower portions thereof and which has the properties of softening under heat and hardening when cool and when heated is forced by the pressure of the closure into the clearance and therein solidifies with air-tight sealing adhesion to the mutually adjacent surfaces.

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

HARRY WILDAY JOHNSON.

Witnesses:

I. OWDEN O'BRIEN,  
HARRY BARNFATHER.