(No Model.)

E. F. POLAND.

FRUIT JAR STOPPER.

No. 299,676. Patented June 3, 1884.

Fig. 1.

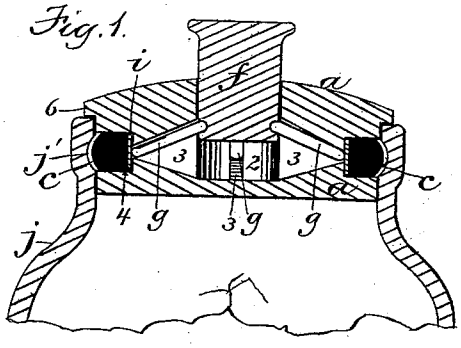


Fig. 2.

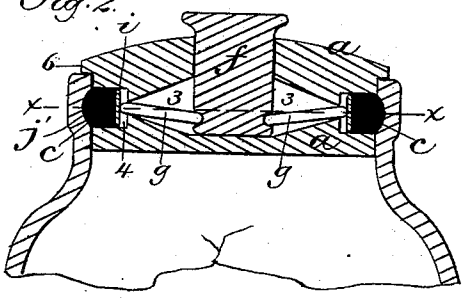


Fig. 4.

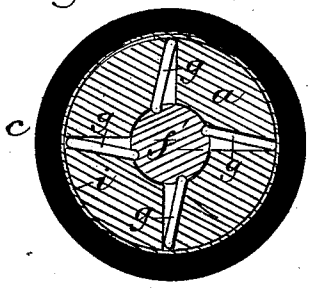


Fig. 3.

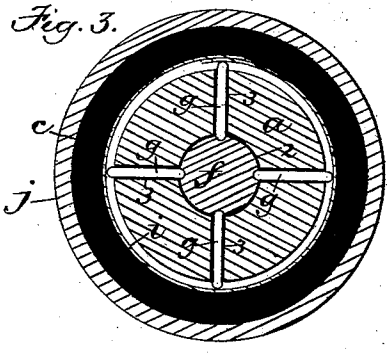
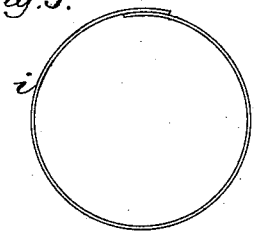


Fig. 5.



Witnesses.
Joseph Lastler
A. L. White

Inventor.
E. F. Poland
by Wright Brown
Attys.

N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

EDWARD F. POLAND, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-FOURTH TO JAMES G. CRAWFORD, OF SAME PLACE.

FRUIT-JAR STOPPER.

SPECIFICATION forming part of Letters Patent No. 299,676, dated June 3, 1884.

Application filed October 15, 1883. (No model.)

To all whom it may concern:

Be it known that I, EDWARD F. POLAND, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Fruit-Jar Stoppers, of which the following is a specification.

This invention consists in a stopper composed of a rigid body formed to fit the mouth of a jar, and having a peripheral groove, a central cavity, and slots connecting said groove and cavity, an elastic packing-ring in said groove, an expansible support behind said ring, and devices contained in and held in place by said cavity and slots, adapted to distend said ring by pressure exerted outwardly from the center of the stopper, the ring being thereby pressed outwardly in all directions against the neck of the jar, and caused to tightly close the latter, as I will now proceed to describe.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a vertical central section of my improved stopper, showing the packing-ring contracted. Fig. 2 represents a similar section, showing the packing-ring expanded. Fig. 3 represents a horizontal section on line *x x*, Fig. 2. Fig. 4 represents a similar section of a modification. Fig. 5 represents a top view of the expansible support for the packing-ring.

The same letters of reference indicate the same parts in all the figures.

In carrying out my invention I provide a stopper-shaped body, *a*, of a rigid material, preferably glass, formed in one piece; or, if preferred, in two or more pieces rigidly united, so as to be in effect a single piece. In the periphery of the body *a* is formed a groove, 4, extending around the stopper or body. In said groove is placed a stout elastic ring, *c*, of rubber or other suitable material. Said ring when in its normal condition is contracted, as shown in Fig. 1, so that it does not project materially beyond the periphery of the stopper.

The body *a* has a central socket or cavity, 2, extending from its upper surface partly to its lower surface, and a series of radial slots, 3, connecting said socket with the groove 4, said slots being vertically widened at their inner ends and tapered toward their outer ends. In the groove 4, behind the elastic ring *c*, is placed an expansible ring or support, *i*, for the inner surface of said ring, said support being preferably a strip of steel bent into circular form with its ends free and overlapping, as shown in Fig. 5, although, if preferred, it may be composed of two or more independent segments.

f represents a plunger or pusher located in the socket 2, and moving up and down therein.

g g g g represent links or straight pieces of wire placed in the radial slots 3, and bearing at their inner ends in recesses formed in the lower portion of the pusher *f*, and at their outer ends against the inner surface of the expansible support *i*. When the elastic ring is contracted, it contracts its support *i* and holds the links *g* in the upwardly-inclined position, the pusher *f* being in the elevated position shown in Fig. 1. It will be seen that by depressing the pusher *f* the links *g* will be pushed outwardly by the downward movement of the pusher, and thus exert an outward pressure on the support *i* and elastic ring *c*, the links *g* acting on the principle of a toggle or knuckle joint. The elastic ring is thus expanded, so that it entirely fills the groove and bears closely against the neck of the jar. When the pusher is depressed, the inner ends of the links *g* are thrown slightly below their outer ends, so that they will be retained in the depressed position by the inward pressure of the ring. The jar is thus tightly sealed, so that the stopper cannot be easily removed, and so that air cannot pass it, a downward movement of the pusher being all that is required to seal the jar. An upward movement of the pusher loosens the cover and enables it to be easily removed. The pusher is prevented from being entirely withdrawn from the stopper by the links *g*, which enter recesses or sockets formed in the sides of the pusher.

Fig. 4 shows a modification in which the links *g* are arranged tangentially when the packing-ring is contracted, and bear at their inner ends against a rotary plug, *f'*. By a partial rotation of said plug the links are pushed outwardly and caused to assume a

radial position, thereby expanding the packing-ring and its support.

The stopper-body *a*, preferably, has a flange, 6, adapted to rest on the top of the neck of the jar *j*. I prefer to form a groove, *j'*, in the inner surface of the neck of the jar, said groove coinciding with the packing-ring, which is pressed into the groove when expanded.

It will be seen that the socket or cavity 2 and slots 3 not only contain, but also hold in place the devices used for expanding the support *i* and the packing-ring, no external means for securing said devices being required.

I claim—

1. In a fruit-jar stopper, the combination of a rigid body, *a*, formed in one piece, and provided with a peripheral groove, a central cavity, and slots extending from said cavity outwardly to said groove, an elastic packing-ring in said groove, an expansible support behind said ring, and devices, substantially as described, contained in and held in place by the cavity and slots of the body *a*, whereby the expansible support and packing-ring are expanded outwardly in all directions from the center of the body *a*, as set forth.

2. In a fruit-jar stopper, the combination of the rigid body *a*, having the peripheral groove 4, the elastic packing-ring *c*, located in said groove, the expansible support *i*, behind said ring, the plunger or pusher *f*, adapted to slide in a socket in the body *a*, and the links *g*, interposed between the pusher *f* and support *i*, and contained in radial slots or apertures in the body *a*, as set forth.

3. In a fruit-jar stopper, the rigid body *a*, having the flange 6, the central socket, 2, extending downwardly from its upper side, the peripheral groove 4, and the radial tapered slots 3, connecting the socket 2 with the groove 4, combined with the elastic ring *c*, located in said groove, the expansible support *i*, behind said ring, the pusher *f* in the socket 2, and the links *g*, passing through the slots 3, and engaged at their inner ends with the pusher *f*, and bearing at their outer ends against the support *i*, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 11th day of October, 1883.

EDWARD F. POLAND.

Witnesses:
P. E. MERRIHEW,
C. F. BROWN.