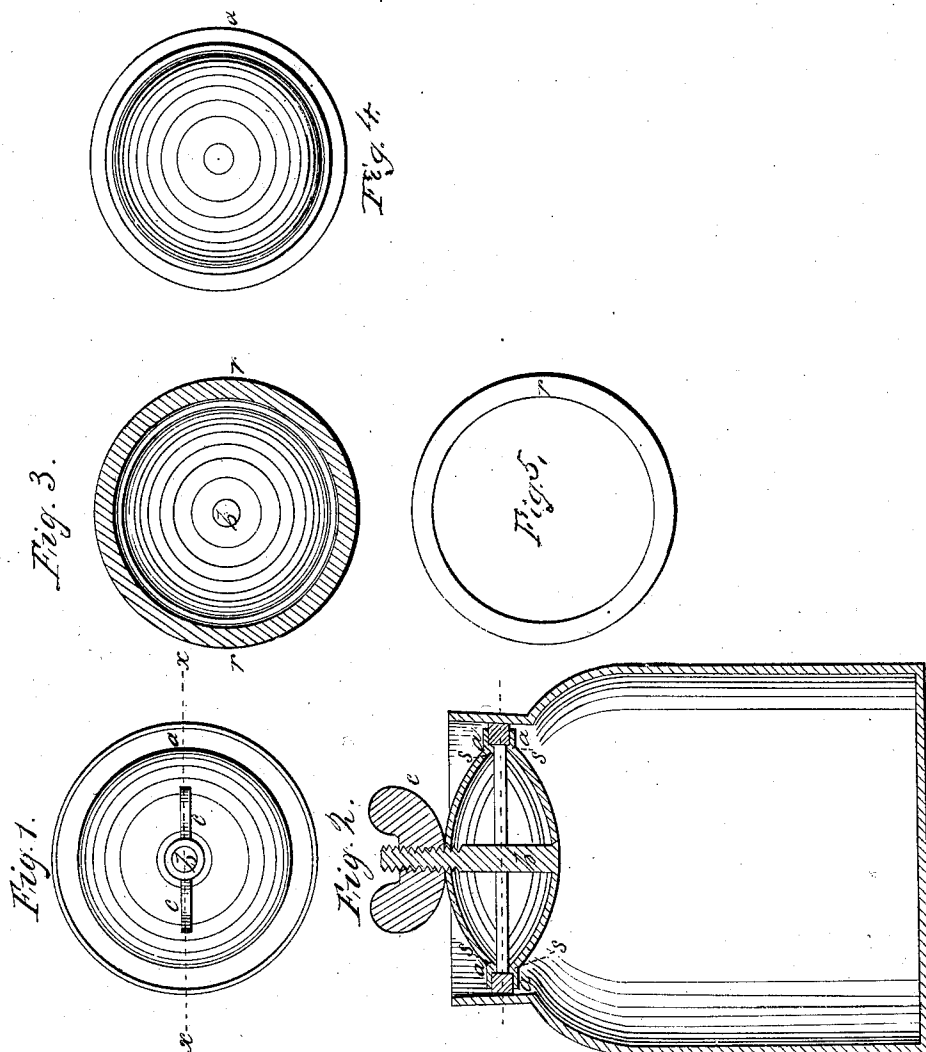


T. T. Prosper
Fruit-Jar Stopper,

N^o 38,600.

Patented May. 19, 1863.



Witnesses.
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UNITED STATES PATENT OFFICE.

TREAT T. PROSSER, OF FOND DU LAC, WISCONSIN.

IMPROVED STOPPER FOR FRUIT-JARS.

Specification forming part of Letters Patent No. 38,600, dated May 19, 1863.

To all whom it may concern:

Be it known that I, TREAT T. PROSSER, of the town and county of Fond du Lac, in the State of Wisconsin, have invented a new and Improved Elastic Air-Tight Stopple for Hermetically Closing or Stopping Jars, Cans, Pots, or other Vessels; and I do hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference thereon marked, on all of which drawings the same letter is used to designate the same part.

Figure 1 is a top view of the stopple; Fig. 2, a vertical section through the line *xx* of Fig. 1; Fig. 3, an inside view of the lower disk with the annular elastic ring; Fig. 4, an inside view of the upper disk; and Fig. 5, a view of the annular elastic ring.

The object of this invention is to make a cheap and reliable stopple, perfectly air-tight, and capable of easy and ready adjustment to or removal from the neck of the vessel to which it is to be applied.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

My stopple consists, in the first place, of two concave disks of some elastic metal—such as copper, iron, brass, or tin. It will be best to have these two disks alike in form and thickness, that they may exhibit in operation a like elasticity. These disks are surrounded by a flat flange, *a*, as seen in Figs. 1, 2, and 4. At the junction of these flanges with the disks there is a shoulder projecting vertically or perpendicularly from the plane of the flanges, as seen at *ss*, Fig. 2. These two disks with their flanges and shoulders are held together and operated by a screw and nut, as seen in Fig. 2 at *b* and *c*. It will be seen that when these two disks have their peripheries brought nearly together the flanges and shoulders form three nearly perfect sides of a square, (see Fig. 2,) the outer face of the square being entirely open. Into the cavity or chamber thus formed by the flanges and shoulders, I introduce a square or quadrangular ring of india-rubber or other elastic substance, a plan view of which is seen in Fig. 5, and a section, *rr*, in Fig. 2. On Fig. 3 the ring *r* is seen in place on the flange of the lower disk. When

uncompressed and in position, its outer face should project slightly beyond the outer edges of the flanges, as seen in Fig. 2. Although I prefer having these disks exactly alike in their curvature, because they will in this form act more uniformly, yet it will be within the range of my invention to make the radius of one greater or less than the other; but in all cases the chord of the curvatures must be the same in length, so that the shoulders and flanges may be in direct operation and acting alike upon the elastic ring. I prefer giving these disks the form of the segment of a sphere rather than an oval, and by lessening the length of the radius of the sphere, or, in other words, increasing the convexity of the segment of the circle, the resistance will be increased, and by this means sufficient strength may be obtained to enable me to use ordinary sheet-tin for making this stopple. When the size of the jar or can should be such as to require the use of a material thicker than sheet-tin, such as copper, brass, or iron plate, it will be well to galvanize or tin or silver the lower surface of the lower disk to prevent the chemical action of the contents of the jar upon the former metals, and even when tin-plate itself is used the exposed end of the screw *b* should be tinned or soldered over to prevent the results of the galvanic action which would otherwise take place between the head of the screw and the disk when these two, as will generally be the case, are of different metals.

It has been found by practical experiment impossible to manufacture the mouths of jars and cans of glass, particularly with an exact uniformity of size when large quantities are required for the trade. The consequence is there is much difficulty in adjusting an air-tight stopple to the varying size of the mouth of the cans and jars. Unlike ordinary corks or stoppers, which do not require any very exact adjustment, because they are not expected to be absolutely air-tight, (and in the case of the corks, they vary in size to suit the case by tapering them, these air-tight stopples are expected to be, and ought to be, to accomplish the purpose to which they are to be applied, as perfectly impervious to air and moisture as the sides or bottom of the vessel itself. This cannot be the case unless a mode of adaptation between the irregular openings

of the vessel and the uniform size of the stopple can be devised. This I accomplish by giving the mouth of the jar or can a slightly conical or flaring form outward, as seen in the mouth of the jar represented in Fig. 2. Such an arrangement enables me to adopt or apply my stopple to the small inequalities of size in the mouth of the jar resulting from the unavoidable effect of the manufacture.

From this description the operation of this stopple can be readily appreciated. The screw *b* is passed through the two disks, as shown in Fig. 2, or the lower disk may be attached to the head of the screw by soldering or otherwise, without being passed through the disk, the nut *c* being screwed down a certain distance to approximate the flanges and shoulders near enough, the elastic ring *r* is put in position, and the disks with their flanges and shoulders made to approach each other until the elastic ring is slightly compressed and secured in its place. In this condition the stopple is introduced into the mouth of the can, jar, or vessel until it comes in firm contact with the sides of this part of the vessel. The nut *c* is then brought into operation

by screwing it down upon the screw *b*. This necessarily brings the disks nearer each other, and these, carrying along the flanges *a a a*, more or less compression, as the case may require, is exercised upon the elastic rubber ring, which, from the interposition of the shoulders *s s*, has no other line of expansion but outward against the side of the vessel.

Having thus fully set forth the nature and operation of my improved air-tight stopple, what I claim therein, and desire to secure by Letters Patent of the United States, is—

1. The two uniform elastic metallic disks, flanges *a a*, and shoulders *s s*, in combination with the quadrangular elastic ring *r*, the whole operated by the nut *c* and screw *b*, substantially as set forth.

2. The stopple, as above described and claimed, in combination with a jar, can, or other vessel having a slightly conical or flaring mouth, as set forth.

T. T. PROSSER.

Witnesses:

H. KING,

C. T. SMITH.