W. J. STEVENSON.

Fruit Jar.

No. 14,974 Patented May 27, 1856.

Fig. 1.

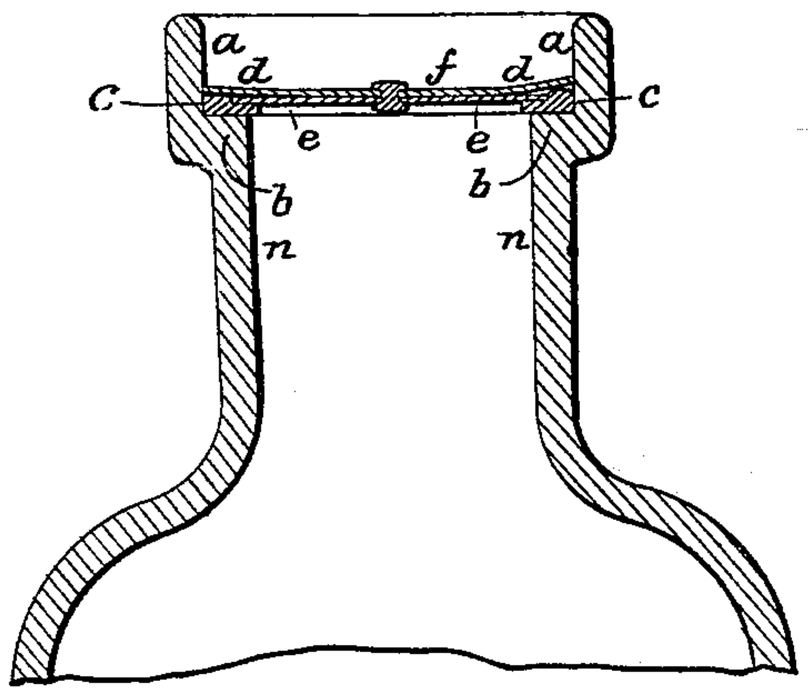

Fig. 2.

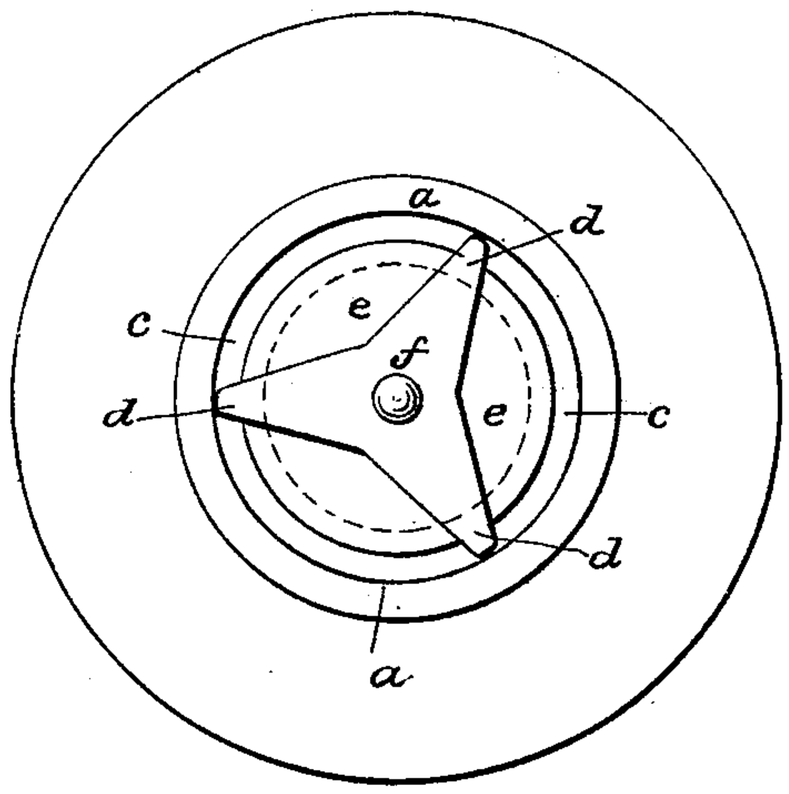

Fig. 3.

UNITED STATES PATENT OFFICE.

W. J. STEVENSON, OF NEW YORK, N. Y.

IMPROVEMENT IN SELF-SEALING PRESERVE-VESSELS.

Specification forming part of Letters Patent No. **14,974**, dated May 27, 1856.

To all whom it may concern:

Be it known that I, WILLIAM J. STEVENSON, of the city, county, and State of New York, have invented a new and useful Improvement in Self-Sealing Preserving-Vessels; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical section of the neck and mouth of a bottle and its cap or stopper constructed according to my invention. Fig. 2 is a top view of the same. Fig. 3 is a section of a modification of the cap or stopper.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in an improvement for the purpose of effecting successfully the hermetical sealing of the can by the action of atmospheric pressure on the cap or stopper.

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

To carry out my invention, I construct the bottle, jar, or other vessel with a rather deep mouth, *a a*, and with a suddenly-contracted neck, *n n*, at the bottom of the said mouth, to form a flat, or nearly flat, shoulder, *b b*, as shown in Fig. 1, to form a bearing for a packing-ring, *c c*, of india-rubber or other soft or yielding substance that is impervious to air, whose exterior is of a size to fit within the interior of the mouth *a a*, and its interior about the size of the interior of the neck *n n;* and I generally construct the cap or stopper, as shown in Figs. 1 and 2, of a disk, *e*, of tin-plate larger than the neck *n n* of the vessel, but considerably smaller than the mouth *a a*, and attach to the upper side of said disk, by soldering or otherwise, a second piece, *f*, of tin-plate or other metal of the form shown in Fig. 2, or of other form, which will leave three or more guide-pieces, *d d d*, overhanging the edges of the disk *e*, and touching, or nearly touching, the interior of the mouth of the bottle, substantially as shown in Figs. 1 and 2, and thus keep the disk concentric, or nearly so, within the mouth and over the neck of the vessel, making the guide-pieces *d d d*, which overhang the edges of the disk, stand so far above the disk *e*, as shown in Fig. 1, as to allow the disk to embed itself in the india-rubber or other ring *c c*, without allowing the guide-pieces to touch it.

Instead of making the cap or stopper of two pieces of metal, as above described, it may be made of a single piece of metal stamped or otherwise bent to give its transverse section the form shown in Fig. 3, making a perfect disk, *e*, at the bottom, as shown in Fig. 1, and suitable raised guide-pieces, *d d*, from the same piece of metal.

To apply the cap after filling the vessel, the india-rubber ring *c* is applied to the shoulder *b b*, and the cap or stopper is placed within the mouth of the vessel, on the top of the said ring. The bottle or other vessel is placed in a hot bath or boiler, and the temperature of its contents raised to such a degree as to generate steam and expel the air. The vessel is then cooled to condense the steam, which produces a partial vacuum within it and causes the pressure of the atmosphere, acting on the outside of the cap, to force the same down and embed it into the ring *c c*.

To apply the cap or stopper in an easy manner, I generally attach to the mouth of the vessel an apparatus which allows the cap to act as a valve during the generation of the steam to produce the vacuum; but as this is not indispensable, and forms the subject-matter of another invention, I will not here describe it.

I am aware that it has been before proposed to apply a metal cap to rest upon a packing-ring placed around the mouth of a vessel and to be closed by atmospheric pressure; but heretofore no proper means have been employed of at once providing for the placing of the cap exactly in its proper position to allow it to have an equal width of bearing all around the packing-ring and to cause it to embed the whole of its edge equally therein. In my invention the guide-pieces *d d d* compel the cap, when dropped into the mouth of the vessel upon the packing-ring, to find an equal width of bearing and embed itself equally all round, and, the guide-pieces being raised above the cap, do not interfere with the embedding of the edge of the cap in the packing, as they would if in the same plane with the edge, and the whole of the cap, being below the top of the mouth, is protected from being knocked off sidewise. The embedding of the edge of

the cap is very important, and unless the disk *e* be smaller than the packing-ring it is impossible to make a hermetical seal.

Having thus fully described my invention, I will proceed to state what I claim and desire to secure by Letters Patent—

I do not claim the sealing of vessels by a packing-ring and a cap which is held down by atmospheric pressure; but in combination with the mouth *a* of the vessel constructed with a shoulder, *b*, at some distance from its entrance, and the packing-ring *c*, resting on the said shoulder, I claim the cap *e*, made with its bearing part smaller than the exterior of the ring, and with raised guide-pieces *d d d*, which keep it in place in the mouth, so as to cause it to get an equal width of bearing all round the ring, but do not prevent the necessary embedding of the edge of the bearing part of the cap in the packing, substantially as herein described.

W. J. STEVENSON.

Witnesses:

JAMES F. BUCKLEY,

WM. TUSCH.