

No. 717,710.

PATENTED JAN. 6, 1903.

E. NORTON.

VACUUM SEALING SHEET METAL CAN.

APPLICATION FILED NOV. 27, 1901.

NO MODEL.

Fig. 1.

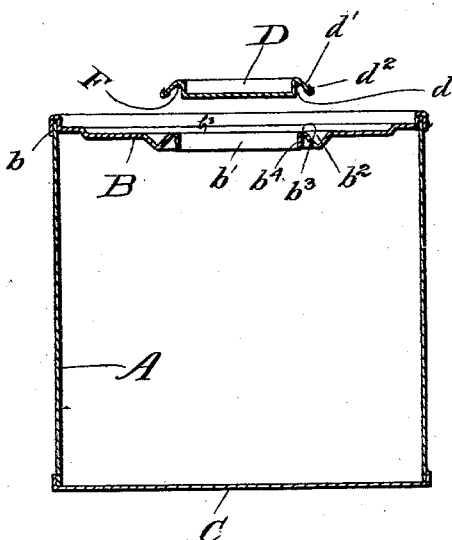


Fig. 2.

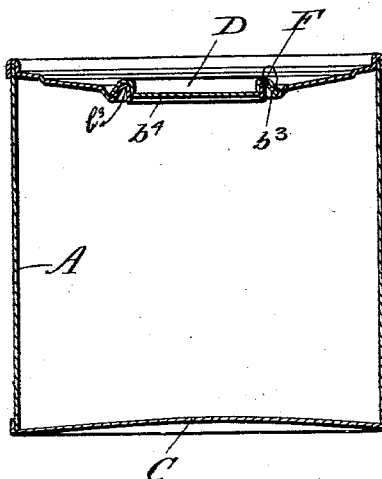


Fig. 3.

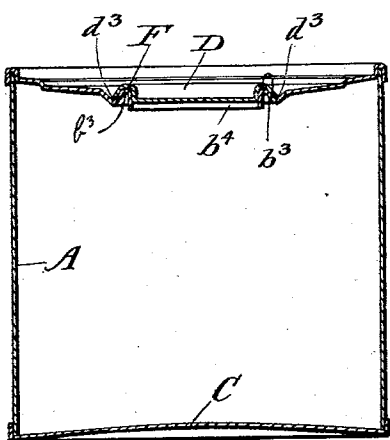
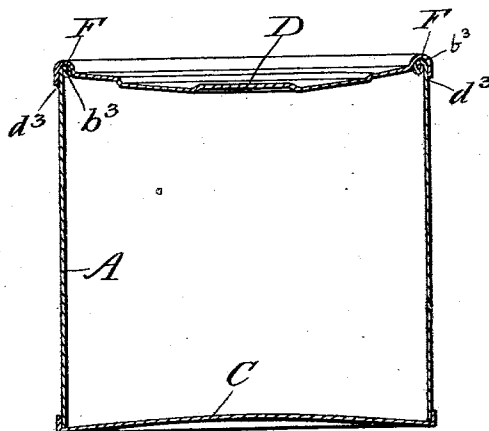


Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

EDWIN NORTON, OF NEW YORK, N. Y., ASSIGNOR TO AUTOMATIC VACUUM CANNING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

VACUUM-SEALING SHEET-METAL CAN.

SPECIFICATION forming part of Letters Patent No. 717,710, dated January 6, 1903.

Application filed November 27, 1901. Serial No. 83,899. (No model.)

To all whom it may concern:

Be it known that I, EDWIN NORTON, a citizen of the United States, residing in New York, in the county of New York and State of New York, have invented a new and useful Improvement in Vacuum-Sealing Sheet-Metal Cans, of which the following is a specification.

My invention relates to vacuum-sealing sheet-metal cans.

Heretofore vacuum-sealing sheet-metal cans, in which the can is closed by a combined vacuum or atmospheric-pressure seal and a mechanical seal or seam, the mechanical seal or seam is formed by a frictional crimped or folded seam.

In my present invention I use or may use the ordinary construction of can having a top or upper head furnished with the customary stud-hole or filling-opening and with a cap for closing the same, the construction, however, being slightly varied by providing the cap with an annular groove to receive a packing-ring and the can top or head being furnished with a seat or bearing for the packing to enable the cap to be hermetically sealed and secured to the head or top by a vacuum or atmospheric-pressure seal. The extreme edge of the flange of the cap may also preferably be provided or hemmed with a film or thin annulus of solder for subsequently uniting the cap to the can-head by the customary soldered seam or joint.

In practicing my invention the can, after being filled with the goods to be preserved therein, is placed within a vacuum chamber or receiver, the cap being loosely in place thereon. The air is then exhausted from the vacuum-chamber and from the can and its contents. The cap is then seated and the can hermetically sealed and secured to the can-head by the vacuum or atmospheric-pressure seal, which is formed the instant the atmospheric pressure is restored to the vacuum-chamber. The can is then removed from the vacuum-chamber and the cap soldered to the can-head. Owing to the vacuum produced within the can at the time the can is closed by the vacuum or atmospheric-pressure seal, the heating of the can and its contents by the

soldering operation will not interfere with the formation of a perfect solder-joint, as the vacuum gives room for the limited expansion of steam or gases produced by the heat of the soldering operation and prevents the tendency of the expanding gases to form pin-holes or leaks in the soldered joint, as has heretofore always been the case and which heretofore has rendered it necessary to provide the can-cap with a vent-hole for escape of air or gases during soldering operation and which vent-hole requires to be subsequently soldered up.

In the accompanying drawings, forming a part of this specification, Figure 1 is a vertical section of a can embodying, or suitable for use in practicing, my invention, the same showing can and cap separated. Fig. 2 is a similar view showing the can after the second step of my process, the cap here being shown as hermetically sealed and secured by the vacuum or atmospheric-pressure seal and the can top or head being collapsed or slightly downwardly curved by the external atmospheric pressure and the vacuum within the can. Fig. 3 is a similar view showing the can after the third step of my process, the cap being sealed and secured to the can by the combined vacuum or atmospheric-pressure seal and soldered seam or joint. Fig. 4 shows the application of my invention to cans in which the cap or cover is of the full diameter of the can-body.

In said drawings, A represents the can-body, B the upper head or top, and C the bottom head.

The top or upper head B has or may have the customary flange *b*, by which it is soldered or otherwise united to the can-body, and a stud-hole or filling-opening *b'*, cap-groove *b*², packing-seat *b*³, and downturned flange *b*⁴.

D is the can-cap. It is furnished with an annular groove or channel *d* to receive the packing or ring F, and with a soldering-flange *d'*, which may preferably be furnished or charged with a solder annulus *d*².

After the can has been filled it, with the cap D loosely in place thereon, is placed with-

in a vacuum-chamber or the receiver of a vacuum-pump and the air is exhausted from the can and its contents. The cap D is then firmly seated on the can and the atmospheric pressure restored to the receiver, thus hermetically sealing the can and firmly compressing the packing F, which is held firmly compressed by the atmospheric pressure when the same is restored to the vacuum-chamber.

The hermetically-sealed can may now be removed from the vacuum-chamber and the cap soldered in place, thus uniting it to the head by the soldered joint d^3 , the same being a secure mechanical seal, as well as by the vacuum or atmospheric-pressure seal formed by the packing F, in conjunction with the vacuum within the can and the external pressure without.

In Fig. 4 the cap or cover D is made of the full diameter of the can-body and the head B is omitted. In this construction the seat or bearing b^3 for the packing F is formed on the can-body itself by providing it with a suitable flange or roll. In this construction, as well as that wherein a separate head B is employed, the soldered joint or seam d^3 is external to the vacuum-seal formed by the packing F, in conjunction with vacuum within the can and the atmospheric pressure without, so that the soldered joint or seam d^3 may be easily and conveniently formed in the manner heretofore customary in use with

ordinary cans which have no packing F or vacuum or atmospheric-pressure seal.

I claim—

1. The combined vacuum and mechanical sealed can, consisting in a can provided with a cover or cap and an interposed packing, the cap or cover being hermetically sealed and secured to the can by a vacuum or atmospheric-pressure seal formed by said packing in conjunction with the vacuum in the can and the atmospheric pressure without, and by a soldered joint, the latter being external to the former, substantially as specified.
2. The combined vacuum and mechanical sealed can consisting in a can having a packing-seat, and a cap or cover furnished with a packing-seat, an interposed packing, and a soldered joint also sealing the cap or cover to the can, substantially as specified.
3. The combination in a can of a can top or head furnished with a seat or bearing for a packing and a cap-groove of a cap furnished with a packing and a soldering-flange, said cap being hermetically sealed and secured to said head by a vacuum or atmospheric-pressure seal compressing said packing and by a solder-joint, substantially as specified.

EDWIN NORTON.

Witnesses:

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