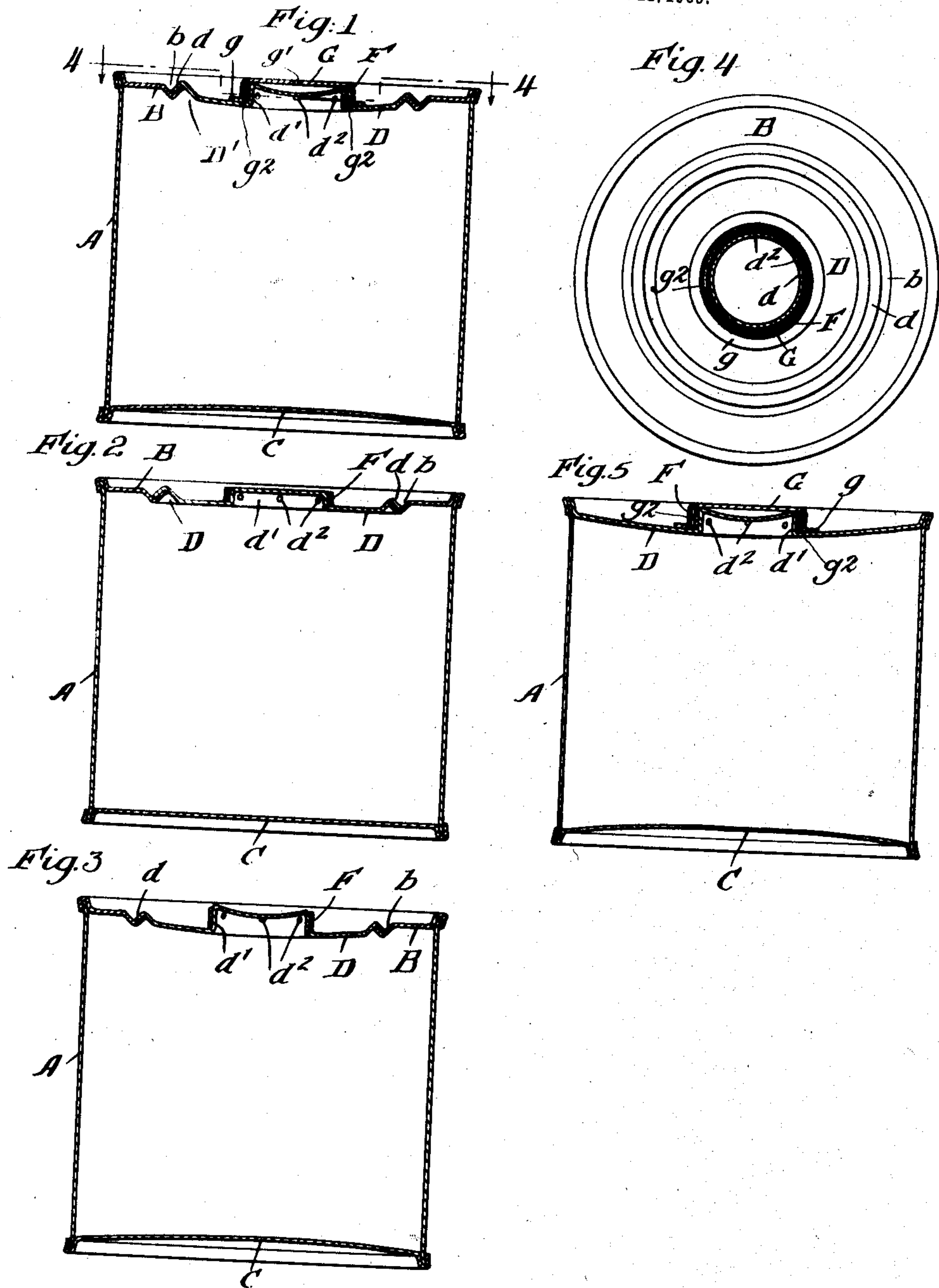


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H. B. WILLIAMS.
VACUUM SEALING PRESERVING CAN.
APPLICATION FILED JULY 12, 1905.



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UNITED STATES PATENT OFFICE.

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VACUUM-SEALING PRESERVING-CAN.

No. 812,968.

Specification of Letters Patent.

Patented Feb. 20, 1906.

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To all whom it may concern:

Be it known that I, HARRY B. WILLIAMS, a citizen of the United States, residing in Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Vacuum-Sealing Preserving-Cans, of which the following is a specification.

My invention relates to vacuum-sealing preserving cans or vessels.

The object of my invention is to provide a preserving can or vessel of a simple and efficient construction capable of being cheaply manufactured and adapted to be hermetically sealed while the air is exhausted from the can and its contents (either by generating steam in the can, and thus exhausting the air, or by subjecting the can to the action of a vacuum-pump or receiver) and which at the same time will be capable of being vacuum-sealed very rapidly and cheaply and in which the vacuum-sealing closure will be protected from injury.

My invention consists in the means I employ to practically accomplish this object or result—that is to say, it consists in providing the cap or head of the can or vessel, which closes the filling-opening therein and which is soldered or seamed in place after the can is filled, with an integral raised hub or boss, preferably cylindrical in form, furnished with perforations or openings through which the air in the can may be withdrawn, in connection with a band-valve, preferably of rubber or other impermeable slightly-elastic material, fitting upon and surrounding the perforated hub and operating to permit the escape of air or gases from the can and to close the perforations in the hub or boss by the vacuum within the can and the atmospheric or other pressure without the same after the air has been exhausted from the can.

It further consists in a protection-cap covering the raised hub or boss and adapted to be soldered thereto either before or after the can has been vacuum-sealed by the vacuum-sealing band-valve.

It further consists in the novel construction of parts and devices and in the novel combinations of parts and devices herein shown and described.

In the accompanying drawings, Figure 1 is a central vertical sectional view of a vacuum-

sealing can embodying my invention. Fig. 2 is a similar view showing the can ready for vacuum-sealing, but before the vacuum-sealing operation. Fig. 3 shows the can after being sealed, but before the protection-cap has been applied. Fig. 4 is a top or plan view, partly in horizontal section, on the broken line 4 4 of Fig. 1. Fig. 5 illustrates a modification in which the filling-opening in the can is the full diameter of or the full size of the can-body.

In the drawings, A represents the body of a sheet-metal preserving can or vessel, B its annular top or head, and C its bottom head.

D is the cap or cover which covers the filling-opening D' in the can, whether such filling-opening be formed in the annular top B, as in Figs. 1 to 4, or without said annular top, as in Fig. 5, where the filling-opening is the full diameter of the can-body. Where the can is furnished with an annular top, as is customary for fruit and vegetable preserving cans, the annular top B is furnished with an annular cap-groove *b* to receive the flange *d* of the cap or cover D, which is soldered thereto after the can has been filled.

To enable the can to be vacuum-sealed, its cap or cover D is provided with a raised hub or boss *d'*, preferably substantially cylindrical in form and provided with a plurality of small openings or perforations *d*², through which the air in the can may be exhausted or withdrawn, either by generating steam in the can after it has been filled and its cap or cover D soldered thereto or else by placing it in the receiver of a vacuum-pump or otherwise withdrawing the air from the can and from its contents.

F is a vacuum-sealing band-valve, preferably of rubber or other impermeable and elastic material, fitting on and surrounding the raised hub or boss *d'* and serving to close the perforations or small openings *d*² therein after a vacuum has once been produced in the can, and which permits the air or other gases to escape from the can through the perforations *d*² when the can is subjected to the vacuumizing operation—as, for example, by generating steam in the can or by placing it in the receiver of a vacuum-pump. After the air has been withdrawn from the can and a vacuum produced therein the external pressure will cause the band-valve F to hermet-

ically seal the can and close the perforations or openings d^2 in the hub or boss d' .

G is the protection-cap, which has a soldering-flange g soldered to the cap or cover D and which fits over and surrounds the raised hub or boss d' of the cap or cover D and the band-valve F thereon, thus protecting the vacuum-sealing closure or band F from injury and affording additional security to the hermetic closure of the can. The protection-cap G is furnished with an opening g' , through which the air is withdrawn from the can in vacuumizing the same if the protection-cap is, as preferred, soldered in place on the cap or cover D at the can factory and before the can is filled or vacuum-sealed. After the can has been vacuum-sealed the opening g' may be soldered up, although the can will remain hermetically sealed by its vacuum-sealing band-valve F without thus closing and sealing the opening g' . If preferred, the protection-cap G may be applied and soldered to the cap or cover D after the can has been filled and after it has been hermetically sealed *in vacuo* or in such manner as to maintain the vacuum in the can by the band-valve F, in which case it is unnecessary to provide the protection-cap G with the opening g' , although such opening will serve as a vent, and thus facilitate the operation of soldering the protection-cap in place. After the can has been vacuum-sealed, whether the protection-cap is applied and soldered in place before or after the vacuum-sealing operation, the can may be further processed, if desired, in the usual way, and after being processed the protection-cap G may be vented and the vent-puncture again soldered up, the band-valve F holding the vacuum during the venting or vent-puncturing operation and while the vent-puncture is being sealed up, as it will be understood that the band-valve F will permit air, steam, or gases to escape from the can, while preventing admission of the same thereto.

The construction illustrated in Fig. 5 is the same as that illustrated in the other figures with the exception that the annular top B is omitted and the cap or cover D enlarged in diameter and soldered directly to the can-body. In this construction the cans are filled through the open upper end of the can-body. After the can has been vacuum-sealed, as illustrated in Figs. 1 and 2, the upper and

lower heads of the can somewhat collapse or curve inward from their position as illustrated in Fig. 2, which shows the can before the vacuum-sealing operation.

The friction-cap G fits loosely around the raised hub or boss d' and flexible band-valve F, so as not to cause said band-valve to close the openings d^2 in the hub d' during the vacuumizing operation. The space g^2 between the cap G and band-valve F indicates a slight free space between these parts.

I claim—

1. In a vacuum-sealing can, a cap or cover closing the filling-opening in the can, and provided with a raised hub or boss furnished with perforations for escape of air in vacuumizing the can, and a band-valve surrounding said perforated hub or boss to close the perforations therein and thus vacuum-seal the can, substantially as specified.

2. In a vacuum-sealing can, a cap or cover closing the filling-opening in the can, and provided with a raised hub or boss furnished with perforations for escape of air in vacuumizing the can, and a band-valve surrounding said perforated hub or boss to close the perforations therein and vacuum-seal the can, and a protecting-cap surrounding and covering said perforated hub or boss and its band-valve, substantially as specified.

3. In a vacuum-sealing can, a cap or cover closing the filling-opening in the can, and provided with a raised hub or boss furnished with perforations for escape of air in vacuumizing the can, and a band-valve surrounding said perforated hub or boss to close the perforations therein and vacuum-seal the can, and a protecting-cap surrounding and covering said perforated hub or boss and its band-valve, and having a soldering-flange soldered to said cap or cover, substantially as specified.

4. A vacuum-sealing vessel having a cap or cover furnished with a perforated boss or hub, and provided with a band-valve fitting thereon, substantially as specified.

5. A vacuum-sealing vessel having a cap or cover furnished with a perforated boss or hub, and provided with a band-valve fitting thereon, and a protection-cap, substantially as specified.

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