June 27, 1933. C. M. GERE 1,915,490

RELEIF VALVE FOR CLOSED CONTAINERS

Filed April 5, 1932

Fig. 1.

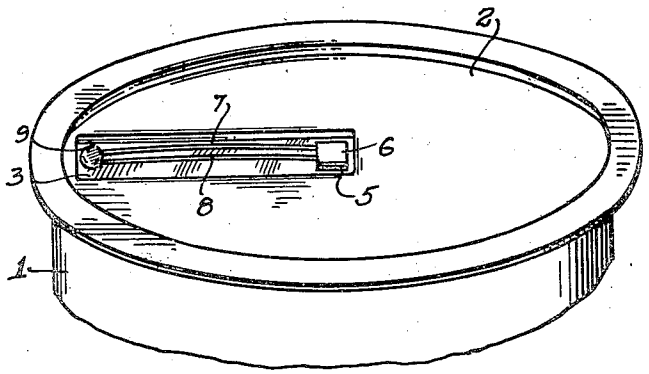


Fig. 2.

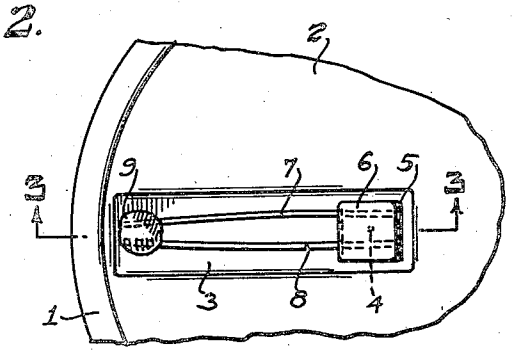


Fig. 3.

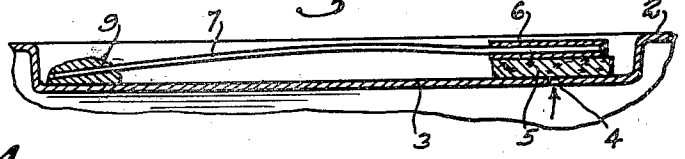


Fig. 4.

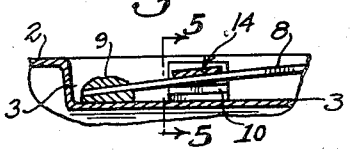
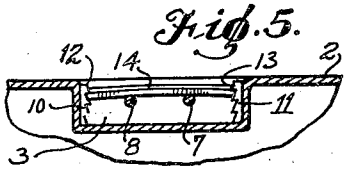


Fig. 5.



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UNITED STATES PATENT OFFICE

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RELIEF VALVE FOR CLOSED CONTAINERS

Application filed April 5, 1932. Serial No. 603,302.

This invention relates to containers, particularly adapted to the retail packaging of cheese or other products in which a curing process involving a fermentative reaction takes place within the container.

The main object of the invention is to provide containers of this character with a relief valve adapted for automatically venting containers of the character described, to relieve these containers of the excess pressure of carbon dioxide gas generated by fermentation, and at the same time to prevent the entrance of air into the container.

Another object of the invention is to provide a container of this character with a valve, the tension of which may be regulated in accordance with the gas pressure in the container to be controlled by said valve.

A further object of the invention is to provide a valve of this character which is made of material insuring a positive release from the container under pressure and therefore insuring a positive venting of the container under all conditions.

Other objects of the invention will become apparent as the detailed description thereof proceeds.

In the drawing:

Figure 1 is a fragmentary perspective view of part of a container having the invention applied thereto;

Figure 2 is a fragmentary plan view of the container with the aforesaid invention applied thereto;

Figure 3 is a vertical section taken on the line 3—3 of Figure 2;

Figure 4 is a fragmentary detail illustrating a modification of the aforesaid invention; and

Figure 5 is a transverse section taken on the line 5—5 of Figure 4.

As shown in the drawing, the container 1 has a head 2 provided with a recess 3 adapted to receive the valve mechanism forming the subject matter of this application. The recess 3 is of sufficient depth to avoid displacement thereof in the normal handling of this type of container. In other words, the recess 3 is deep enough to support the valve mechanism completely below the upper surface of the head 2.

In the form of the invention shown in Figures 1, 2 and 3, the recessed part 3 of the head 2 is provided with a vent 4. This vent 4 is normally closed by a valve plate 5 formed preferably of cork or similar material which is impregnated with paraffin in order to insure a positive release from the bottom of the recess 3 under pressure of the gas in the container through the vent 4. The paraffin impregnated cork 5 is suitably secured to a metallic plate 6 bored to receive the ends of two spring wires 7 and 8 having their ends secured by a patch of solder 9 near the outer end of the recess 3. The other ends of the wires 7 and 8 are soldered or otherwise suitably secured to the plates 6.

It is absolutely necessary in this art, that the valve plates 5 shall not stick to the container. The sticking of the valve would cause too much gas to be retained within the container, thereby ruining the cheese, or similar article within the container, and bulging the head of the can. The pressure of the valve plate 5 over the vent in the head of the can may be regulated by the length and size of the spring wires 7 and 8. As an alternative to this, the recess 3 may have its opposite walls 10 and 11 provided with notched plates 12 and 13, respectively, to receive slidably the opposite ends of an adjustable plate 14. It will be apparent from Figures 4 and 5 of the drawing that this plate 14 may be set in and slid lengthwise of any of the notches to vary the pressure of the valve plate 5 over the vent in the head of the container.

As is well known in this art, it is desirable to pack cheese while in an uncured state, in containers and in quantities such as are generally sold retail. The curing of the cheese may then take place within the container with the added advantage that there is no loss of weight by evaporation, no formation of rind, and no opportunity for mold growth. It is well known too that the fermentation process is accompanied by the evolution of carbon dioxide gas with the risk of swelling the head of the container or bursting it. It is essential, therefore, to provide the con-

tainer with some means for relieving it of excess pressure of carbon dioxide gas and at the same time to prevent ingress of atmospheric air to the packed product. It is absolutely essential that whatever means are provided for this purpose it must be incapable of sticking to the lid of the container and must be such that the pressure of the fermentative gases will be sure to force the valve away from the vent opening in order to release such gases.

While I have described the invention as particularly adapted for use in containers for packaging cheese, it may be remarked that it is just as well suited for the packaging of sauer kraut and other food stuffs in which fermentation process takes place. It will be understood, of course, that the valve may be applied directly to the flat surface of a container and is not necessarily limited to use in recesses formed in said container. The recesses are desirable merely to avoid the possibility of the valve being displaced by handling.

While I have described my invention as embodied in concrete form and as operating in a specific manner in accordance with the provisions of the patent statutes, it should be understood that I do not limit my invention thereto, since various modifications thereof will suggest themselves to those skilled in the art without departing from the spirit of my invention, the scope of which is set forth in the annexed claims.

What I claim is:

1. A container having a recess formed therein and having a vent formed in the bottom wall of said recess, a cork valve seated in said recess over said vent, a pair of spring blades having one end of each secured to said valve and having the other ends secured to the bottom wall of said recess, said springs and valve being wholly contained within said recess.

2. The combination set forth in claim 1, of means for adjusting the yielding pressure of the valve over said vent.

3. The combination set forth in claim 1, and means slidably adjustable in said recess for varying the pressure of the valve over said vent.

4. The combination set forth in claim 1, of means slidably and vertically adjustable in said recess to vary the pressure of said valve over said vent.

In testimony whereof I affix my signature.

CLAIR M. GERE.