No. 616,472. Patented Dec. 27, 1898.

W. M. KINNARD.

GERM PROOF PACKAGE.

(Application filed Jan. 3, 1898.)

(No Model.)

Fig. 1.

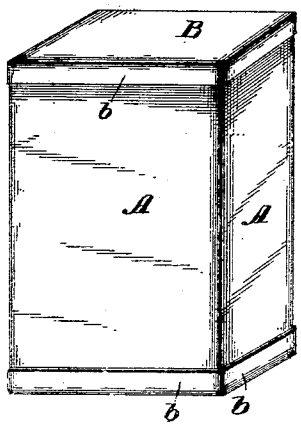


Fig. 2.

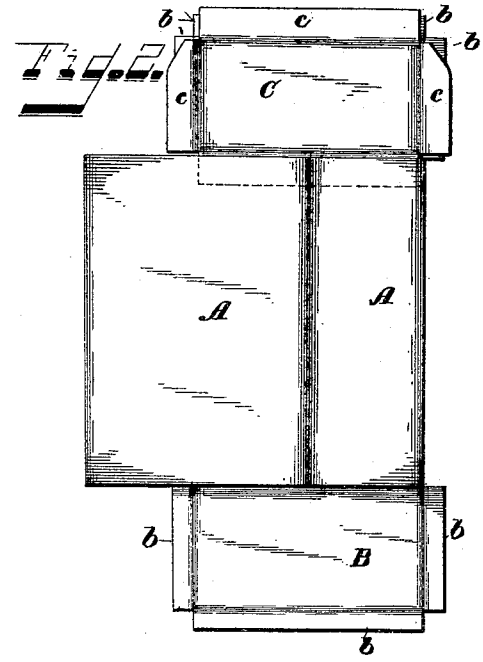


Fig. 3.

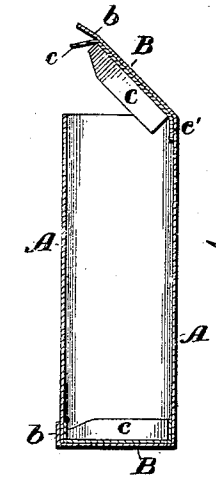


Fig. 5.

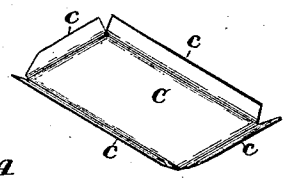
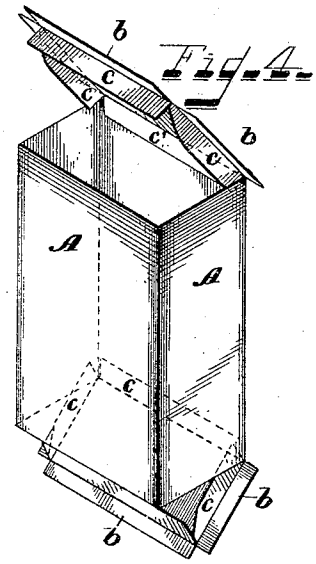


Fig. 4.



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GERM-PROOF PACKAGE.

SPECIFICATION forming part of Letters Patent No. 616,472, dated December 27, 1898.

Application filed January 3, 1898. Serial No. 665,289. (No model.)

To all whom it may concern:

Be it known that I, WILL M. KINNARD, a citizen of the United States, and a resident of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Germ-Proof Packages, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to an improvement in germ-proof packages made, preferably, of paper, cardboard, or similar material, and is intended to be used for the package and transportation of such substances as are likely to become injured by exposure to the atmosphere and the action of the microbes or the deposits of insects, such as flies and the like, and atmospheric changes.

Great difficulty has been found in packing in a satisfactory way food products of various kinds, such as cereals ground and prepared for use, as well as many other substances, because it has been difficult to put them in a light and convenient package that was air-tight, and after several months some of these packages would be found to be wormy. It is necessary when handling these products that they be put up in packages that are light and inexpensive, neat, and attractive.

It is to overcome the difficulties described that I have made my invention, which will be more fully hereinafter described.

In the accompanying drawings, Figure 1 is a perspective view of the package closed. Fig. 2 is a top plan view of the package collapsed, one end being complete and the other end wanting the attachment shown in Fig. 5. Fig. 3 is a vertical cross-section of the package, the upper end open. Fig. 4 is a perspective view of the package with both ends open. Fig. 5 is a perspective view of the supplemental end.

Like letters of reference indicate identical parts in all the figures.

A A are the side walls of an ordinary rectangular box, and it is preferably made in the form of a collapsible or knockdown box, as shown in Fig. 2, and the single piece forming the four sides A A is creased so as to form the four corners, and the ends of it are brought together and glued in the usual manner, the ends of the box B lying out flat to be folded into position, as shown in Figs. 3 and 4. In this form, collapsed or knocked down, as shown in Fig. 2, the boxes are kept until they are ready to be used. They are then brought into the form shown in Fig. 4 and the two ends put in place and secured, forming a rectangular box. There is nothing new in the construction of boxes as thus described except the manner of constructing the ends in order to form an overlapping flange when the box is closed and an interior flange, as hereinafter described.

The end pieces B are provided with extensions or wings *b*, and when the box is brought into shape, as shown in Figs. 1, 3, and 4, these wings are folded over the outside walls A A and secured in place. To make the joints more secure, I provide for the ends supplemental pieces, as shown in Fig. 5, (marked C.) This supplemental piece C is formed with side flanges or wings *c* and is glued to the ends B, as seen at the upper end of Fig. 2 and in Figs. 3 and 4. The lower end B in Fig. 2 shows the form of the blank collapsed before the supplemental ends C are added, while the upper end shows it after the supplemental end C has been put in place, where it is securely glued. I have shown and described the ends formed with a supplemental piece C, glued to the ends B, as the simplest and most economical way of constructing these ends. Of course it is possible to make the ends B C in one solid piece. The ends thus formed are provided with double flanges or wings, as clearly appears in Fig. 4. Two of these inner wings are usually beveled off at their corners, so as to cause them to pass more easily within the walls of the box. When the box is ready to be closed, the glue-brush is passed between the two wings or flanges *c b* clear around the end, depositing glue on the sides of both the flanges *b c*. The end is then folded into place, the wings *c* passing inside the walls A A and the wings *b* passing outside the walls A A, securely embracing the ends of these walls between them and producing a perfectly air-tight joint. I prefer in putting these ends

in position to use a former which will just fit snugly the end of the box and extend up the distance of the outer wing *b*. The pressure of this former against the sides or wings *b b* causes these wings to be glued securely to the sides A A. A similar former may be inserted to press outwardly against the wings *c c*, if desired, though ordinarily the contents with which the box is filled will answer this purpose. Of course a former on the inside could only be used when the bottom end was being secured in place. In practice these boxes remain in their collapsed condition until ready for use. One end is then brought into place and the box placed in the former and filled. Then the other or top end is secured in place and the box turned over and that end put in the former. In that way the contents serve to press outwardly sufficiently to insure a perfectly-tight joint.

The walls A A being made of a single piece, the ends of which are securely lapped and fastened, (and they may be lapped to any desirable extent,) there is no joint or opening, as the overlap is of such an extent as to prevent all possibility of any opening. The ends of the walls being embraced between the wings *c b*, a perfectly-tight joint is secured impervious to air or moisture. If waterproof material is used, it becomes a waterproof as well as an air-tight vessel, and the contents will remain unaffected by the changes or conditions of the atmosphere or by moisture, and it can be used to hold liquids provided such liquids do not affect the glue or a glue is used which will not be affected by liquids.

I have described my package in the preferred form—that is, what is called a "collapsible" or "knockdown" box all in one piece. It will, however, be readily understood that the box may be made perfectly practical in three pieces or in two pieces—that is, with both of the ends separate, or with one of them, the lid or top, separate. In that case all four sides of the lid or end will have the double flanges *b c* to fit over and embrace the four walls of the package, the only difference being that this lid or these ends are made separate. It will also be understood that where the entire box is made in one piece, the outer lid or end B being integral with one of the walls, the inner flap at that side, as shown at *c'* in Fig. 4, is not absolutely necessary and may be omitted, because the wall on the side to which the lid is attached and the lid itself are of one single piece of material in that construction, and of course there is no joint at that point.

I am aware that paper boxes have been made in which the lid was provided with two flanges to pass down within the walls of the box and a third flange formed by an extension of the lid folded back upon itself to form a double flange, the inner one passing down within the walls of the box and the outer one extending loose and free to serve as a handle for opening or closing the box, and I do not claim any such construction, but limit myself to the double flanges embracing and attached to the walls to produce a close and air-tight joint.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A germ-proof box or package, the six walls of which are made from a single blank, and the ends provided with two or more extensions adapted to be secured to the outside of the box and a supplemental end secured to said first-mentioned end and provided with two or more extensions or wings adapted to be secured to the inner sides of the box, substantially as and for the purpose described.

2. A germ-proof package consisting of four side walls and two end walls with two supplemental end walls; the double ends being provided with double wings or flanges to embrace between them the side walls of the package, substantially as described.

3. In combination with the ends of a germ-proof package having wings or extensions to fasten over the outer edges of the walls of the package, the supplemental ends C, provided with flaps or extensions *c*, to fasten within the side walls of the package and the two embrace the ends of the same, substantially as and for the purpose described.

4. A germ-proof collapsible package or box, the ends of which are provided with extensions *b*, *b*, and with a supplemental end C, having the flaps or extensions *c*, *c*, substantially as and for the purpose described.

5. A germ-proof package, one or both of whose sides or ends are provided with double ends and double flanges to embrace the edges of the other sides or walls in the manner described to form an air-tight joint, substantially as and for the purpose described.

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