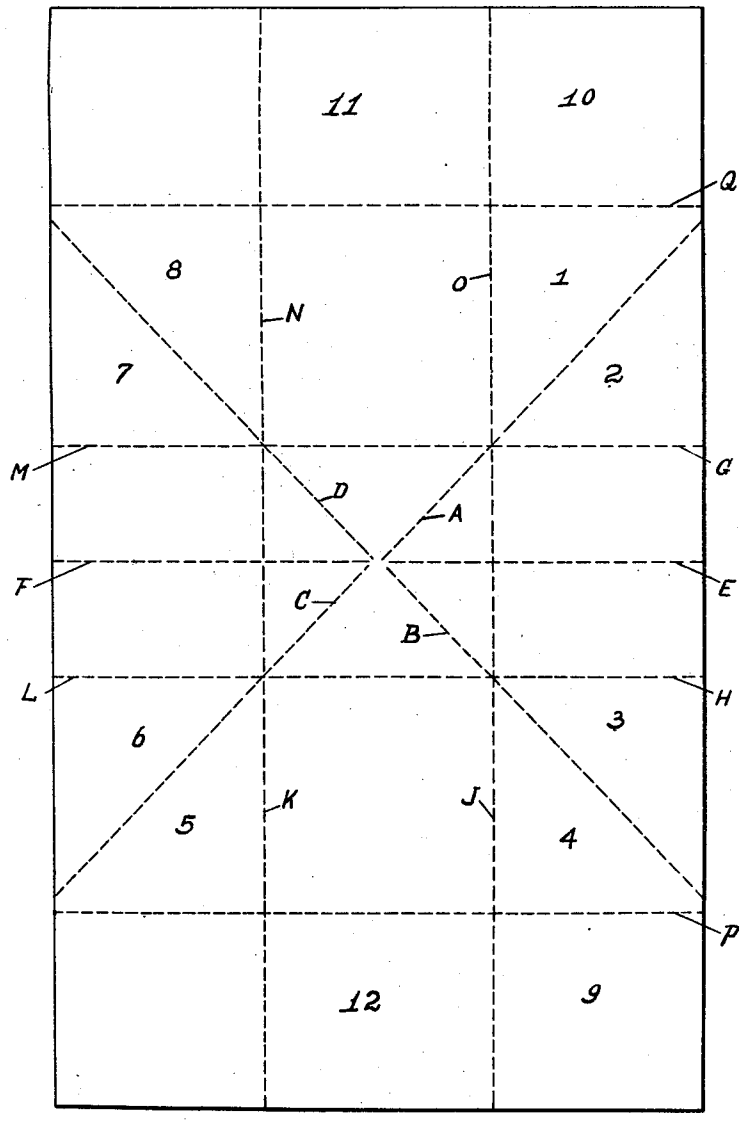
July 4, 1950 K. R. KARLSON 2,514,073

WATERPROOF FLEXIBLE FOLDING CONTAINER

Filed Nov. 16, 1945 3 Sheets-Sheet 1

Fig. 1



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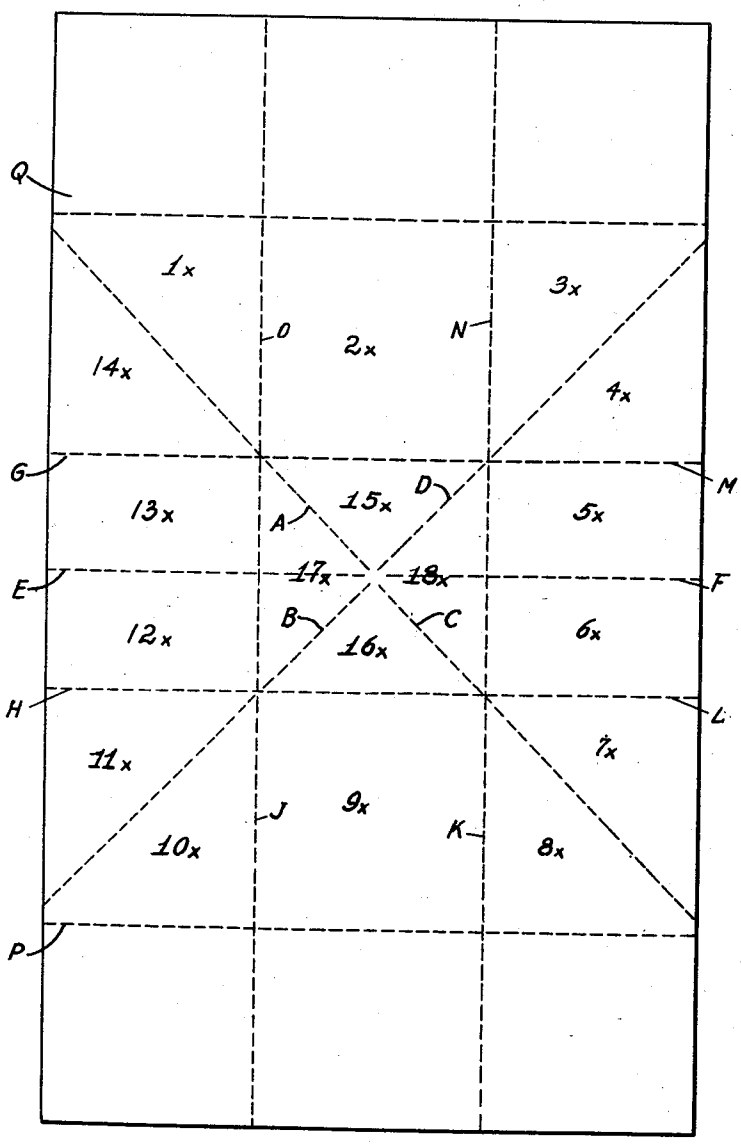
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WATERPROOF FLEXIBLE FOLDING CONTAINER

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Fig. 2



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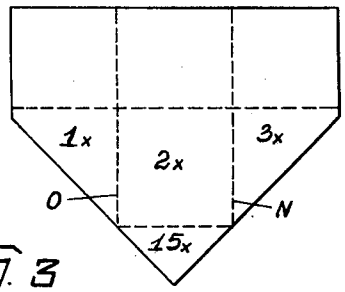


Fig. 3

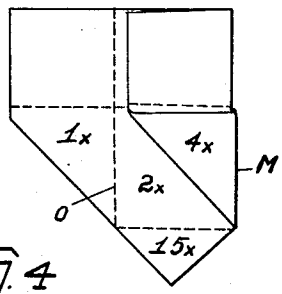


Fig. 4

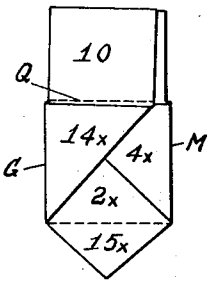


Fig. 5

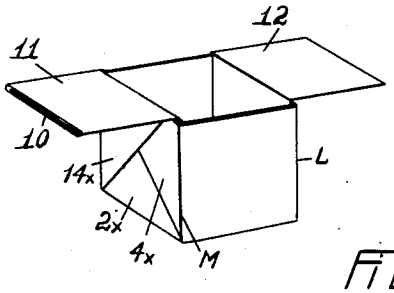


Fig. 7

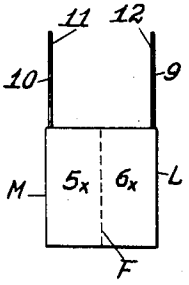


Fig. 6

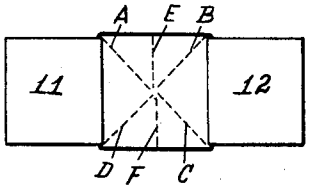


Fig. 8

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Patented July 4, 1950 2,514,073

UNITED STATES PATENT OFFICE

2,514,073

WATERPROOF FLEXIBLE FOLDING CONTAINER

Karl R. Karlson, Mobile, Ala., assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware

Application November 16, 1945, Serial No. 629,105

1 Claim. (Cl. 220—26)

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This invention presents an improvement in a folding, flexible waterproof container.

The principal object of this invention is to provide a container made from a unitary, unnotched and seamless flexible sheet of material, e. g. a light weight laminated kraft paper which may be bonded together with a water proof adhesive or a laminated foil and paper or a water proof fabric. Additional objects are to provide a flexible water proof container which may be folded upon itself to form a small flat parcel which may be carried in the pocket, and to provide a container using a few simple folds in its construction and having tabs at each side of the container which may serve as handles while the container is being used. In addition to the above, two such containers, may be folded together, one serving as a cover for the first.

The following figures will show the progressive steps in folding a sheet to develop the container according to my invention.

Fig. 1 illustrates the open unitary sheet from which the container is formed. This view shows the surface of the sheet which when folded will become the inside of the container.

Fig. 2 is similar to Fig. 1, but shows that surface of the sheet which, when folded, will become the outside of the container.

Figs. 3, 4 and 5 illustrate the appearance of the blank after the successive folding operations which will be set out in the following description. At the end of the folding step illustrated in Fig. 5, the blank is a flat folded package ready for packing.

Fig. 6 illustrates a side view of Fig. 5 after the flat package has been expanded and with upturned flaps.

Fig. 7 is a perspective view of the container with the side flaps turned out, and is the final shape of the container.

Fig. 8 is a plan view of Fig. 7.

Similar characters refer to similar parts throughout the several views.

The surface of the blank which is to become the inside surface of the container is shown in Fig. 1. The dotted lines indicate where folds are to be made. The folding lines consist of three sets. The two primary folding lines, AC and BD extend in a diagonal direction from one to the other of the long edges of the sheet crossing each other near the center of the blank. The two secondary folding lines, KN and JO, run parallel to the long edges and terminate at the short edges of the blank. A tertiary set of five folding lines Q; GM; EF; HL and P extend parallel to

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the short edges and terminate at the long edges of the blank.

It will be noted that the primary and the third tertiary lines are divided into two sections the interior ends of which are staggered so that they do not meet at a common point which would develop a weak spot in the blank.

The parts of the blank which will contact each other upon folding are numbered 1, 2; 3, 4; 5, 6; 7, 8. The surfaces of the tabs, which will be exposed after folding, are designated as 9, 12 and 10, 11. These areas are numbered as an aid in the description of the folding of the blank.

In Fig. 2 is shown the surface of the blank which, after folding, will become the outside surface of the container. The numbering of certain areas in this drawing, goes from $1x$ to $18x$ inclusive.

The description of the folding of the blank begins with Fig. 3. The first folds are made along line AC bringing areas 1 and 2 and areas 5 and 6 into contact. Subsequently, folds are made contemporaneously, but in opposite directions along two lines namely, inwardly along line BD, bringing areas 3 and 4 and areas 7 and 8 into contact and outwardly, along line EF, bringing exterior areas $11x$ and $14x$, $12x$ and $13x$ as well as exterior areas $4x$ and $7x$, $5x$ and $6x$ together. The blank will then appear as in Fig. 3.

The next folds are made along line N and the overlapping part of line M, bringing area $3x$ into contact with area $2x$. Similar folds are made along line K and, in so far as it overlaps line K, along line L, thus contacting $8x$ and $9x$. The blank now appears as illustrated in Fig. 4 but lines K and L and surfaces $8x$ and $9x$ are not visible in this view.

Fig. 5 shows the appearance of the blank after folds have been made along line O and the overlapping part of line G, bringing portions of surface $1x$ into contact with surfaces $4x$ and $2x$, and along line J and the overlapping parts of line H, whereby portions of surface $10x$ are brought into contact with surfaces $7x$ and $9x$. The blank has now become a flat folded package which may be easily stowed in the pocket or in storage, occupying very little space.

In order to convert this package into a container it is only necessary to straighten out the surfaces $5x$—$6x$ and $12x$—$13x$ which in the previous stage had been folded along their vertical line of contact and to press the areas $15x$, $16x$, $17x$, and $18x$ (Fig. 2) upward. It will be noted that by this operation the entire length of fold line EF has been unfolded again. In this way,

the package is expanded and a flat bottom is formed which allows the container to rest in an upright position. The side flaps 10, 11 and 9, 12, composed of three thicknesses of the blank are still extending straight upwards at this step. Fig. 6 illustrates the container as it appears at this point. This view is at a 90° angle from the one shown in Fig. 5.

Fig. 7 is a perspective view showing the container in its completed stage of manufacture ready for service. The side flaps 10, 11 and 9, 12 have now been turned outside on folds P and Q parallel to the base.

The container can again be converted into a flat compact package by reversing the last mentioned operations, that is by turning back the handles so that they are again in the same plane as the side walls and by simultaneously pushing down or outwards the areas constituting the bottom and folding along lines E, F.

Fig. 8 is a plan view of Fig. 7 illustrating, in the final shape, the staggered position of the interior ends of folds A, C, B, D, E and F, whereby the development of a weak center point at the bottom of the container is prevented.

It is manifest that two containers may be considered as a unit so that one may serve as a cover to fit over the other. A cover can also be formed by turning the handles inside so that they are in an overlapping position, thus giving the contents of the container protection against outside interferences.

Having described my invention, what I claim and desire to secure by Letters Patent is as follows:

A rectangular container constructed from a unitary unnotched sheet of flexible material, said unitary sheet being cut oblong in form, and having two primary folding lines running crosswise and in oblique direction from one to the other of its long edges, and intersecting each other near the center of the blank, and having two secondary folding lines parallel to the long edges and terminating at the short edges of the sheet and a tertiary set of five folding lines parallel to the short edges of the sheet, the second and fourth tertiary folding lines intersecting the primary and secondary folding lines near the points of intersection of these lines, the first and fifth tertiary folding lines intersecting the secondary folding lines and terminating near the terminal points of the primary folding lines, the primary folding lines and the third tertiary folding line being divided into two sections each of substantially equal length, said sections being staggered so as to preclude a common point of intersection, and the said sections of the third tertiary folding line meeting the said sections of the primary folding lines near their points of junction, the sheet at each end and meeting the primary oblique folding lines being formed with integral extensions, which extensions are adapted for outward projection when the sheet is set up to form a rectangular container, and each projection consisting of three plies.

KARL R. KARLSON.

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