

March 11, 1941.

R. M. LACKEY ET AL

2,234,180

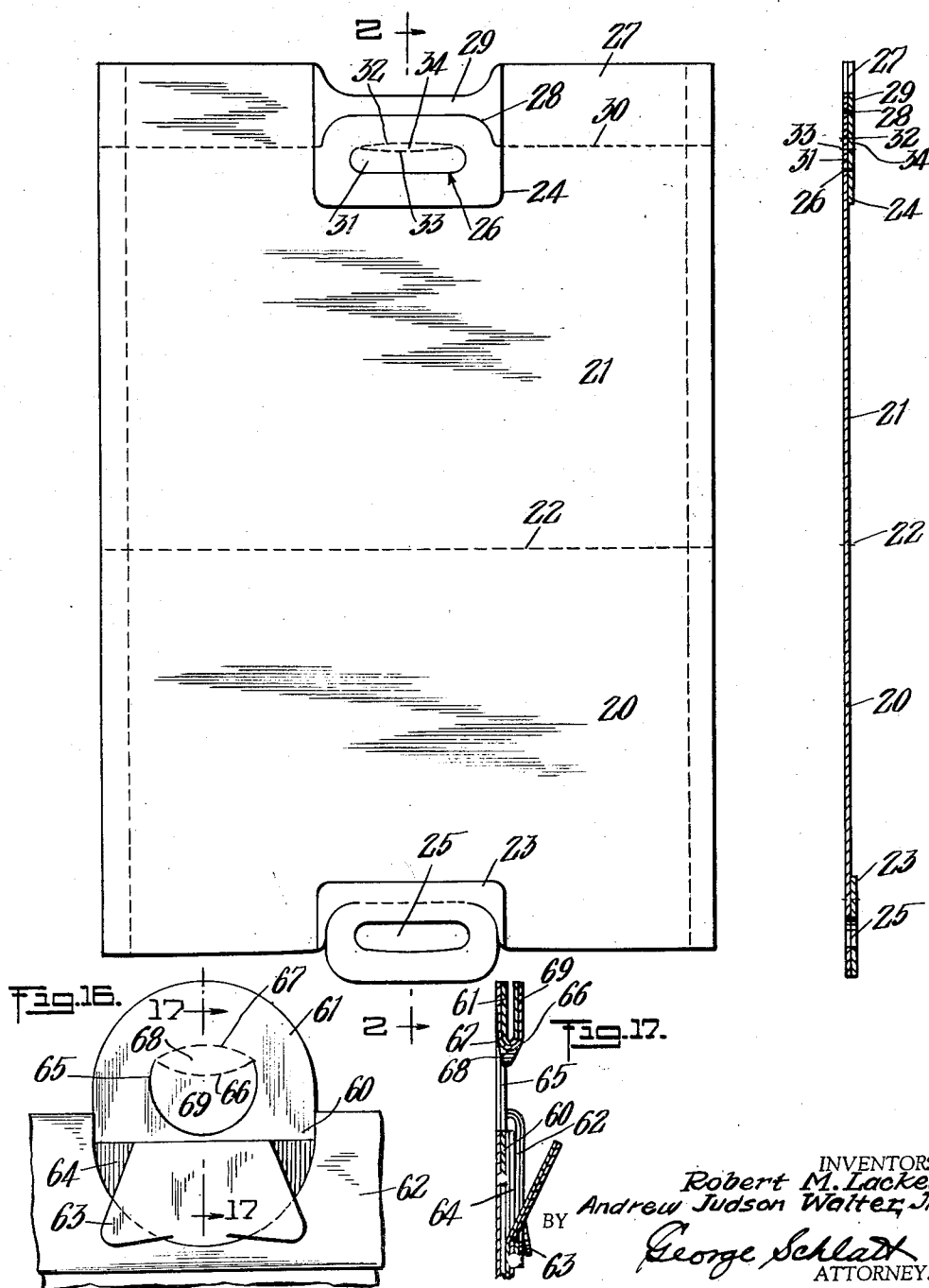
CARRYING DEVICE

Filed Feb. 2, 1937

4 Sheets-Sheet 1

Fig. 1.

Fig. 2.



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4 Sheets-Sheet 2

Fig. 3.

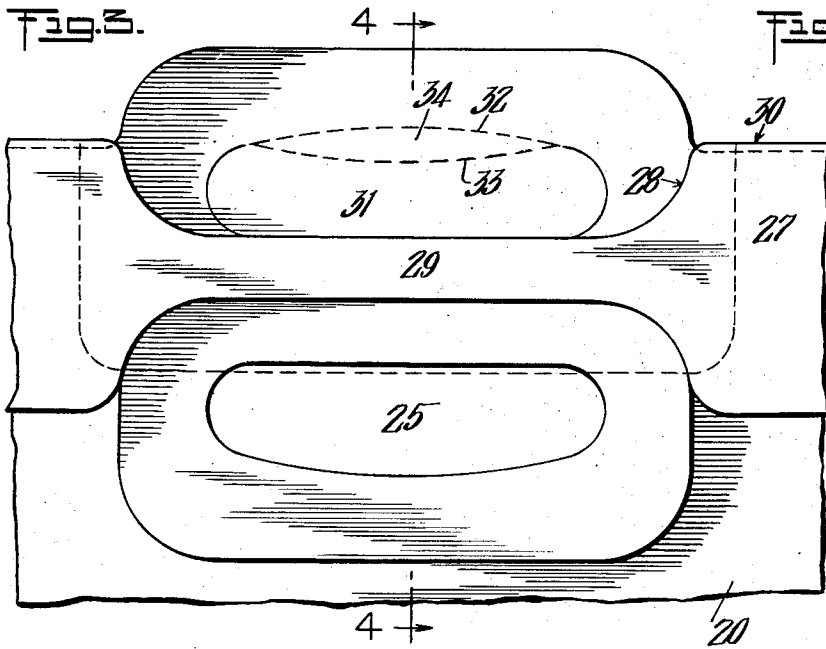


Fig. 4.

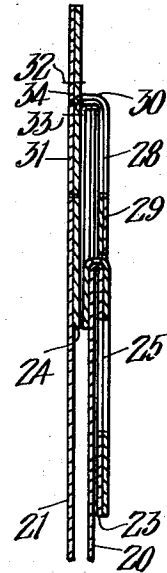


Fig. 5.

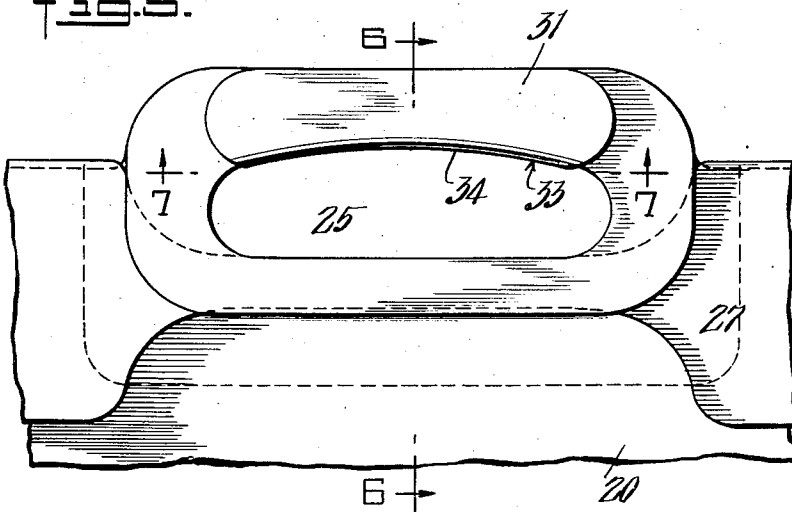


Fig. 6.

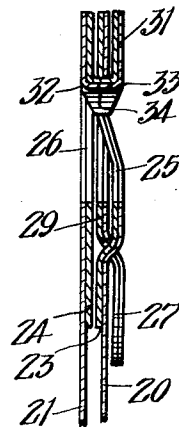
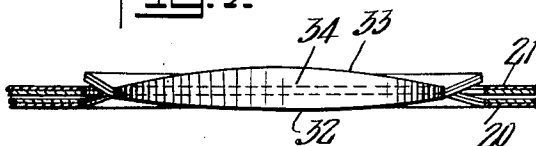


Fig. 7.



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Fig. 8.

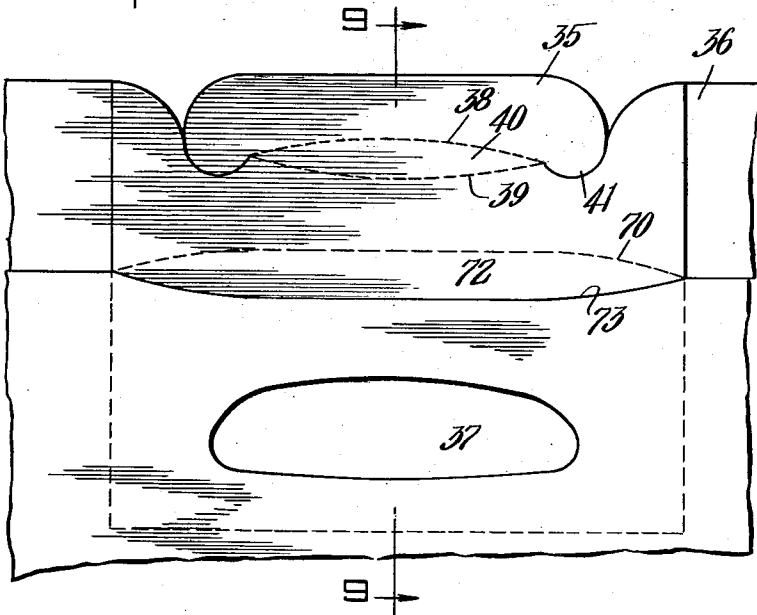


Fig. 9.

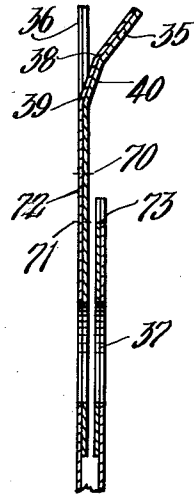


Fig. 10.

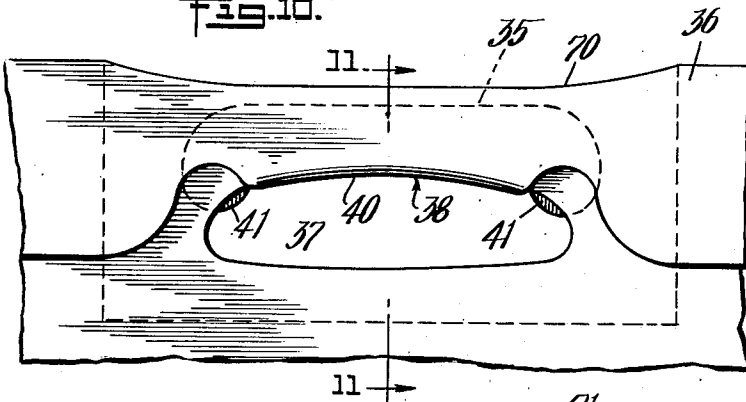


Fig. 11.

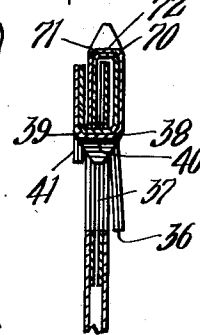
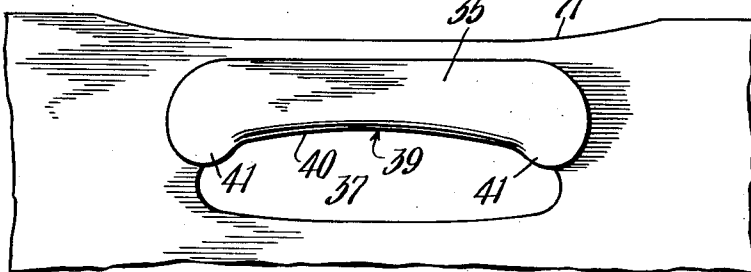


Fig. 12.

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Fig. 13.

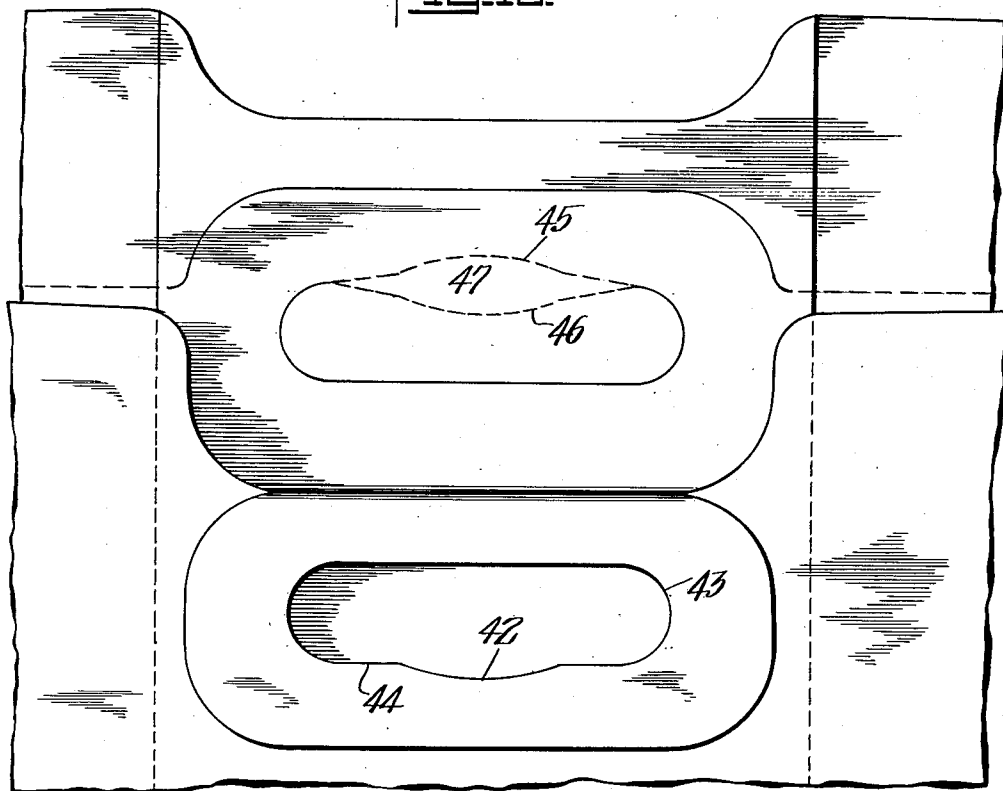
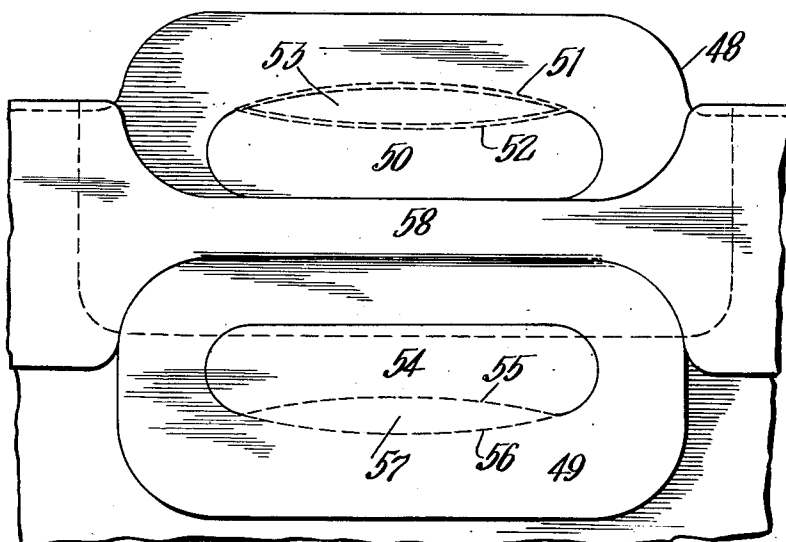
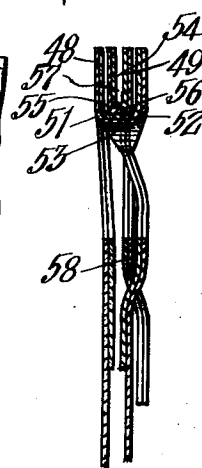


Fig. 14.

Fig. 15.



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CARRYING DEVICE

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signor to said Lackey

Application February 2, 1937, Serial No. 123,608

15 Claims. (Cl. 229—54)

This invention relates to carrying devices with more particular reference to the combinations with various types of containers of a more improved handle for locking and carrying the same.

Objects

Among the principal objects which the present invention has in view are: to provide for increased strength in the handle; to enable heavier loads to be carried in the container without otherwise increasing the strength of the material employed; to render the handle more comfortable to the person carrying the same; to distribute the lifting force applied to the handle more evenly throughout the handle; to increase the tendency of the handle to remain locked when once folded to closed and carrying position; to provide a structure which is readily stamped out, assembled, folded and used; and to otherwise secure simplicity of construction and operation, and to obtain other advantages and results as may be brought out in the following description.

Referring to the combinations in the drawings in which like numerals of reference indicate similar parts throughout the several views.

Drawings

Figure 1 is an out-spread view of sheet material embodying the invention ready for final folding and formation;

Figure 2 is a vertical sectional view shown as taken on line 2—2 of Figure 1;

Figure 3 is an enlarged detail view of a fragment of the handle forming a portion of the container, showing the position of the members when the cover flap has been moved to semi-closed position;

Figure 4 is a sectional view shown as taken on line 4—4 of Figure 3;

Figure 5 is a view similar to Figure 3 and showing the service position of the completely folded container and handle member;

Figure 6 is a sectional view shown as taken on line 6—6 of Figure 5;

Figure 7 is a horizontal sectional view shown as taken on line 7—7 of Figure 5;

Figure 8 is a view similar to Figure 3 showing modification in the handle;

Figure 9 is a sectional view shown as taken on line 9—9 of Figure 8;

Figure 10 is a view similar to Fig. 5 showing the service position of the completely folded container handle member of slightly different construction;

Figure 11 is a sectional view shown as taken on line 11—11 of Figure 10;

Figure 12 is a showing of the handle from the opposite side of the container shown in Figure 10;

Figure 13 is a view similar to Figures 3 and 8 and showing a further modification of handle construction;

Figure 14 is a similar view showing a still further modification;

Figure 15 is a sectional view showing the container completely closed;

Figure 16 is a still further application of this invention; and

Figure 17 is a sectional view shown as taken on line 17—17 of Figure 16.

Description

In the specific embodiment of the invention illustrated in said drawings, and referring initially to Figs. 1 to 7 inclusive, there is illustrated a container formed from a blank more particularly shown in Figs. 1 and 2, such that the blank when folded will provide what for convenience may be termed the back and front walls 20 and 21 thereof. It will be understood that these terms are arbitrary for descriptive purposes only. The particular fold in the container provides a transverse crease 22 which determines the bottom of the container when the blank is folded. The opposite ends of the blank, midway between the side edges thereof, are provided with handle patches 23 and 24 secured flatwise upon the blank for obtaining increased strength and stability. When the container is completed, these patches will lie in juxtaposed position. The patches and contiguous parts of the blank are provided with transverse hand or finger openings 25 and 26, which register with respect to each other in the completed container. One of the container walls, for instance wall 21 designated as the front, is provided with an end flap 27, which, when the container is in use, is folded over the otherwise open end of the container for closing the same. Part of the patch 24 for the front wall 21 is upon the front wall proper and part is upon flap 27. A line of severance 28 extends across the patch so as to give the desired shape of the upper edge of the handle part of the patch. The part of the patch in the flap beyond this line of severance forms a cross bar 29 which is shaped by the line of severance and positioned by virtue of the crease line 30 between the flap and rear line 21 to fold clear of the finger opening 26 and assume a position between the front and back patches

in the closed position of the container as clearly indicated in Figs. 3 to 6.

According to the structure illustrated in Figs. 1 to 7 now being described, the material forming the finger opening of one of the patches is entirely removed in manufacture, whereas material forming the other finger opening is not severed at one edge, but is left to be folded by the user and form part of the handle and lock. Thus, it will be seen that patch 23 on the back wall 20 of the container has its finger opening 25 completed, with the material entirely cut-away, whereas the other patch 24 of the front wall has a line of severance at the bottom and sides of the finger opening but has the material 31 remaining and integral with the patch at the upper edge of the finger opening. The creasing of the retained material 31, hereinafter referred to as locking member 31, constitutes a particular feature of the present invention. In its broadest aspect, the creasing is effected so as to obtain an arch formation. To accomplish this result, it will be observed that a double crease is provided, one line of creasing 32 bowing upwardly and the other bowing downwardly, in other words line 32 may be considered as convex and the other line 33 as concave, the said lines of creasing converging at the termination of the opposite ends of the line of severance around the cut-out part of the finger opening. It will be observed that when locking member 31 is swung upon these lines of creasing so as to be positioned above the finger opening, that both lines of creasing will then arch in the same direction and the material 34 included between the two arcs will be positioned transverse to the front and back lines and will constitute an arched surface and the finger-contacting portion of the handle.

Arch 34 performs several functions, one of which is to provide an extended transverse surface for engagement with the hand of the person carrying the container and thus makes the carrying of the container more comfortable since it will not cut into the fingers. The other function is to increase distribution of the carrying force over a more extended area of the handle. The fact that arch material 34 is at right-angles to the plane of the front wall and to the integral part of the patch next said arch, obtains a reinforcement preventing the handle from bending where supported in the plane of the handle. Furthermore, the shape of the arch is one which, as a proposition of physics, provides a stable structure which will both distribute moments of force in the direction of the axis and in the direction of the abutments. A further feature is found in the more secure locking of the closed container. This results from the fact that a certain amount of distortion of the material is necessary in order to fold the free end of the locking member to its upwardly directed position, since folding of sheet material is normally upon a straight line and not upon an arc. However, after the fold is completed, since there are two arcs with intervening arch material therebetween, the fold is complete and stable and will resist, due to the curvature of the crease, a return to its original extended condition.

It is not to be understood that the invention is in any way limited to any particular type of container or material. For instance, in Figs. 8 to 12 is shown a container of a different type, and a hand opening of a different construction than the handle arrangement shown in Figs. 1 to 7. Furthermore, this container shown in Figs.

8 to 12 instead of providing an integral locking member stamped from the opening, provides a locking member 35 at the far edge of flap 36 which can be inserted through the juxtaposed hand openings 37 of the two walls of the container after the flap has been folded. Hand openings are however, as in the previously described container, made arcuate at the carrying edge thereof and locking member 35 is secured with arcs of corresponding radius to that of the opening, one, as 38 being convex and the other 39 being concave to provide the width of arch material 40 therebetween corresponding to the structure heretofore described. The arcs 38 and 39 of scoring terminate and intersect where severance of the locking member begins.

In this instance, the locking member is shown with secondary locking ears 41, 41 at opposite ends thereof below an extended imaginary straight line passing through the points of intersection of said arcuate scorings 38 and 39. All of the advantages of the arch formation heretofore set forth are present in the structure of the several figures just described.

We would point out at this time, that it is not necessary to shape the entire supporting edge of the hand opening arcuately, it being within the scope of the invention, as illustrated in Fig. 13, to have the middle part 42 of the hand opening 43 arcuate at its upper edge and its remaining part 44 to be substantially straight across. Under such formation of supporting edge of the hand opening, creases 45, 46 which include the arch material 47 therebetween, will preferably be of an ogee formation the middle parts of which bow away from each other.

The same features may likewise be secured in containers employing double locking members. That is to say, containers may be constructed wherein each face or its patch may have a locking member foldable to finger-engaging position. Of course one of these folding members will overlie the other and therefore only one will actually be engaged by the finger but the other will be contiguous thereto or enclosed therein. For instance, in Figs. 14 and 15 is provided a handle member 48 on the front wall of the container and a handle member 49 on the back wall of the container. From the front side of the hand opening of the front handle member 48 is turned up a member 50 stamped from the hand opening and creased upon double arcuate lines 51, 52 with the arch material 53 therebetween. Locking member 54 is stamped from the back handle 49 likewise having single arcuate creases 55, 56, which include arch material 57 therebetween, so that, when the front is closed will be inserted through the hand opening of the front handle 48, and arch 57 of the rearward handle will underlie and be in engagement with the arc 53 of the front handle. This will accordingly give double reinforcement to both with respect to the arch transversely to the plane of the container. Furthermore, in carrying out the invention, it will be readily understood that the feature of the double arcuate crease lines as shown in the front handle member 48 in Figures 14 and 15 may readily be employed in the single handle members of the other figures. Also, it is to be understood that one single arcuate crease line may be employed, and a double arcuate crease line converging to meet the single arcuate line and vice versa.

While the foregoing description has been directed largely to the containers utilizing a large

enough opening for several fingers in the handle and have likewise utilized the folded member for locking purposes, it is within the scope of the invention to apply the invention not only to smaller openings, such as for a single finger, but also to provide a folded member at a curved supporting edge of the opening for providing an arch irrespective of any locking function. Such structure is illustrated in Figs. 16 and 17. It will be observed there, that a patch 60 is shown having a portion 61 which constitutes the handle and projects above the top of the container when the flap 62 is folded down to close the container. This construction also shows a locking member 63 stamped from the back wall 64 of the container by which the flap is held closed. Patch 60 is upon the front wall of the container and provides a line of severance 65 for providing the finger opening. From the ends of the line of severance intersecting each other thereat are concave and convex crease lines 66, 67, between which is included arch material 68. The material 69 included between the line of severance and the concave crease line may be bent upwardly, as shown in Fig. 17, and will thus position the arch 68 at the supporting edge of the finger opening perpendicular to the plane of the container.

With respect to all of the constructions above described, we would emphasize that the invention contemplates the provision of an arcuate supporting edge for that part of the container which constitutes the handle, whether it be by forming directly in the container or in a reinforcing patch or both. The invention further contemplates the arch as formed by an integral part of the material included between two crease lines which intersect at opposite ends and which have mid- portions bowing away from each other. The invention likewise presents the feature of this arch being positioned, when the container is being carried, so that the material comprising the arch is perpendicular to the adjacent material integral with the arch material. The invention has thus been shown applicable to the carrying edge of various constructions of containers and handles, but is not limited either to the few examples of handle structures chosen for illustrative purposes herein, nor is it necessarily limited to its application to the carrying edge only of the handle. It may be applied to other edges and to other parts of the container.

Illustrative of this last mentioned advantage of the invention, attention is directed to Figs. 8 to 12 inclusive wherein is illustrated an inverted arch extending across a part of the upper edge of the container when the flap 36 is turned down to close the container. This inverted arch is obtained by the use of two creases 70, 71 which intersect at opposite ends and provide an arch material 72 therebetween. In the particular construction shown, the front upper edge of the back wall is cut away along arcuate line 73 corresponding to the lower or concave crease line 71 made in the front wall. For this reason crease line 71 is immediately behind the arcuate edge 73 in Fig. 8 and will not be seen in that figure. By reference to Figures 10, 11 and 12, it will be observed that the particular embodiment provides a downwardly curved arch 72 at the top of the container and an upwardly curved arch 38 therebelow at the upper or carrying edge of the hand opening.

While we have shown in the several views of the drawings the adaptation of handle construc-

tion to containers, it is to be understood that the construction of such handles is not to be limited to that particular use and purpose, as it is well within the scope of the invention to use such handle construction for other containers, such as, bottle or can containers, hand luggage, hand grips and other carrying devices having handles.

We claim:

1. In a carrying device, in combination with front and back walls, an arch the material of which is positioned in use substantially perpendicular to the plane of the carrying device.
2. In a carrying device having front and back walls and an opening for carrying purposes, an arch the material of which is positioned at the carrying edge of the said opening.
3. In a carrying device, having front and back walls and an opening for carrying purposes, an arch the material of which is substantially perpendicular to the plane of the carrying device and above said opening.
4. In a carrying device, having front and back walls and an opening for carrying purposes, an arch the material of which is substantially perpendicular to the plane of the carrying device and along the carrying edge of said opening.
5. In a carrying device, having front and back walls and an opening for carrying purposes, an arch the material of which is substantially perpendicular to the plane of the carrying device and extends along the carrying edge and substantially the length of said opening.
6. In a carrying device having front and back walls and an opening for carrying purposes, an arch the material of which is substantially perpendicular to the plane of the carrying device along the carrying edge of and substantially the length of said opening.
7. A carrying device comprising a handle having a part to be folded, and a pair of crease lines crosswise of the handle for effecting the fold, said crease lines converging at two separate points toward the sides of the handle and including a part of the material of the handle between said crease lines for constituting the folded edge when said part is folded.
8. A carrying device comprising a handle having a flap to be folded, and a pair of crease lines crosswise of the handle for effecting the fold, said crease lines converging at two separate points toward the sides of the handle and including a part of the material of the handle between said crease lines for constituting the folded edge when said flap is folded.
9. A carrying device comprising in combination with a bag having front and back walls of which one wall provides a flap at its end, said flap adapted to fold and overlie the other wall when in closed position, said one wall and flap being integral parts one with the other of which one provides a locking member integral therewith and adapted to be folded with respect thereto and interlocked with the other said wall, and a pair of crease lines longitudinally of the locking member at the juncture of said member and wall for effecting said fold, said crease lines converging at two separate points next the sides of the locking member and including a part of the material of the locking member between said crease lines for constituting the folded edge of said locking member when said member is folded.
10. A carrying device comprising joined front and back members with the front member ex-

tending upwardly beyond the back member providing a cover flap to overlie the back member when in closed position, said front and back members having reinforcements next their upper edges substantially centrally thereof and said members and reinforcements provided with finger openings therethrough with the portion of material resultant from formation of the front opening integrally retained along one edge of the opening, a pair of arcuate crease lines extending substantially from side to side of the said portion of material from the front finger opening, said crease lines meeting at the ends of said opening and bowing away from each other symmetrically, and the upper edge of the finger opening of said back member being cut-away substantially from side to side thereof in juxtaposition to one of the aforementioned crease lines following the arcuate curvature of said crease line, whereby the portion of the material between said crease lines will present an arch with the arcuate cut-away edge of the back member engaged by said arch.

11. A carrying device according to claim 10 wherein said portion of material resultant from formation of the front opening constitutes a locking member adapted to pass through the said finger openings for locking the front and back members together.

12. A carrying device according to claim 10 wherein the said portion of the material between said crease lines when passed through said openings presents an arch substantially perpendicular to the plane of the carrying device and corresponding along the carrying edge of the opening substantially the length thereof, said portion of material also providing locking ears adapted to pass through the said openings for locking the arch in place and the front and back members together.

13. A carrying device comprising joined front and back body members with the front body member extending upwardly beyond the back body member and providing a cover flap to overlie the back body member when in closed position, said front body member providing an extension forming a front handle member at the mid-part of the cover flap, said front handle member remaining extended when the cover flap is folded, said back body member having a back handle member adapted to be folded upwardly in juxtaposition to the front handle member, both said front and back handle members having juxtaposed hand openings therein, and said front handle member having a locking member of substantially the area of the hand openings and hinged at corresponding juxtaposed edges of said hand openings, said locking member of the front handle member having a plurality of arcuate crease lines for comprising the hinged connection thereof with said front handle member, said arcuate crease lines extending in a crosswise direction of the carrying device partway across the said front handle member with the arcuate crease lines of said front handle member converging and meeting next their ends, whereby when the locking member and the back handle opening are juxtaposed the said locking member is folded on said crease lines the same will interlock with said back handle member and will form

an arch of the material of the hinge portion of the said front handle member.

14. A carrying device comprising joined front and back body members with the front body member extending upwardly beyond the back body member and providing a cover flap to overlie the back body member when in closed position, said front body member providing an extension forming a front handle member at the mid-part of the cover flap, said front handle member remaining extended when the cover flap is folded, said back body member having a back handle member adapted to be folded upwardly in juxtaposition to the front handle member, both said front and back handle members having juxtaposed hand openings therein, and both said front and back handle members each having corresponding locking members of substantially the area of the hand openings and hinged at corresponding juxtaposed edges of said hand openings, each of said locking members having a plurality of arcuate crease lines for comprising the hinged connection thereof with their respective handle members, said arcuate crease lines extending in a crosswise direction of the carrying device partway across the said handle members with the arcuate crease lines of each handle member converging and meeting next their ends, whereby when the locking members are juxtaposed and simultaneously folded on said crease lines the same will interlock with each other and the handle members and will form an arch of the juxtaposed material of the hinge portion of the handle members.

15. A carrying device comprising joined front and back body members with the front body member extending upwardly beyond the back body member and providing a cover flap to overlie the back body member when in closed position, said front body member providing an extension forming a front handle member at the mid-part of the cover flap, said front handle member remaining extended when the cover flap is folded, said back body member having a back handle member adapted to be folded upwardly in juxtaposition to the front handle member, both said front and back handle members having juxtaposed hand openings therein, and both said front and back handle members each having corresponding locking members of substantially the area of the hand openings and hinged at corresponding juxtaposed edges of said hand openings, each of said locking members having a plurality of arcuate crease lines for comprising the hinged connection thereof with their respective handle members, said arcuate crease lines extending in a crosswise direction of the carrying device partway across the said handle members with the arcuate crease lines of each handle member converging and meeting next their ends, whereby when the locking members are juxtaposed and simultaneously folded on said crease lines the same will interlock with each other and the handle members and will form an arch of the juxtaposed material of the hinge portion of the handle members, and said arch being substantially perpendicular to the carrying device and substantially the length of the openings.

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