United States Patent [19]

Welles

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[54] **CONTAINER FORMER**

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[52] **U.S. Cl.** ..... **248/99,** 24/255 BS

[51] **Int. Cl.** **B65b 67/12**

[58] **Field of Search** ..... 248/97, 95, 99, 101; 24/30.5 S, 255 BS; 229/53, 66

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[57] **ABSTRACT**

A device which comprises a generally U-shaped body portion dimensioned to be received at least partially around the open upper end of a generally rectangular container maintaining the container in an opened condition when foreign objects are deposited therein. The bottom of the U-shaped body portion is positioned to extend across the back wall of the container with the legs thereof extending across the container side walls. Preferably, the body portion is constructed from a resilient plastic material with the legs of the body portion biased slightly outward from each other to engage the side walls of the container. The bottom portion includes a mounting hole therein in order that the device may be received over a cooperating supporting and mounting device with the container itself. The bottom and legs of the body portion also include container gripping means for conveniently retaining the container in position and providing strength thereto.

8 Claims, 9 Drawing Figures

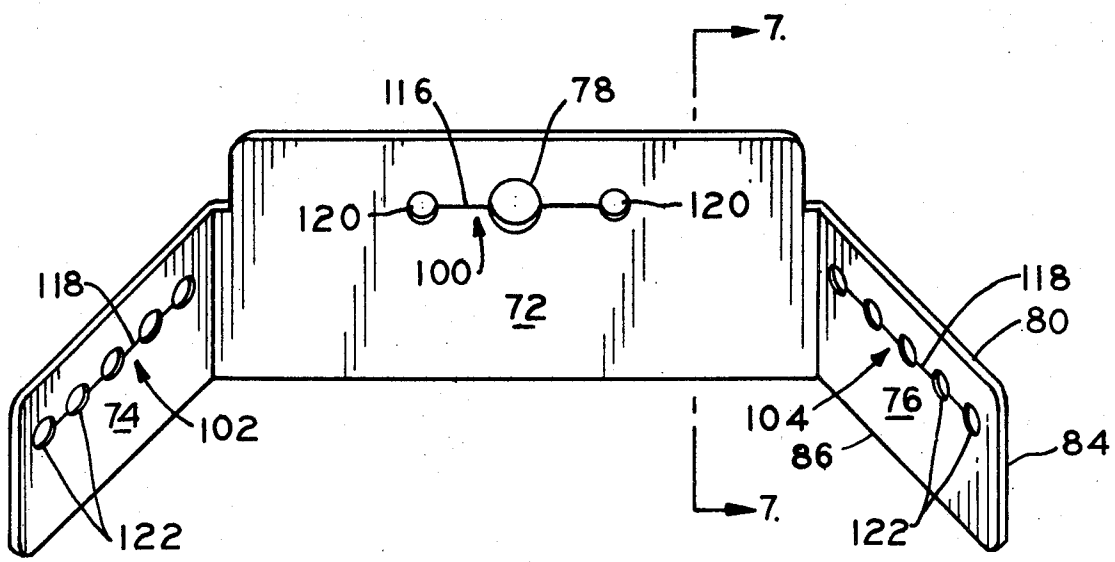


Fig. 1. PRIOR ART

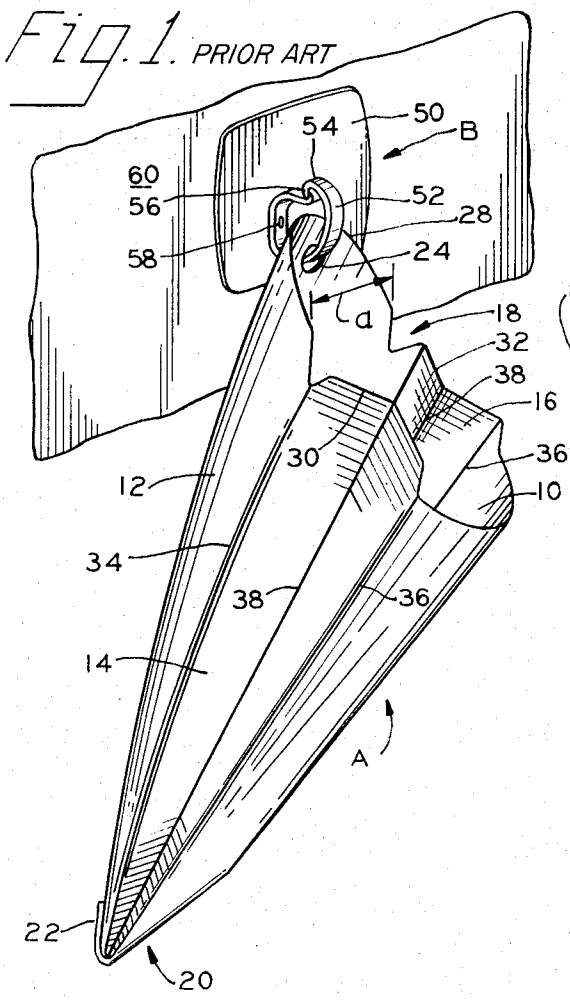
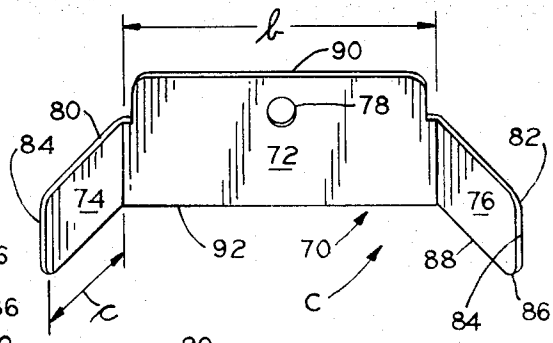


Fig. 2.



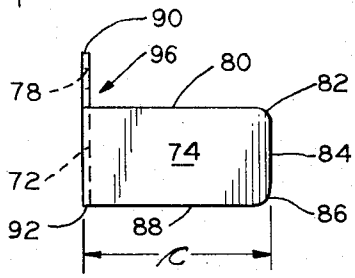


Fig. 3.

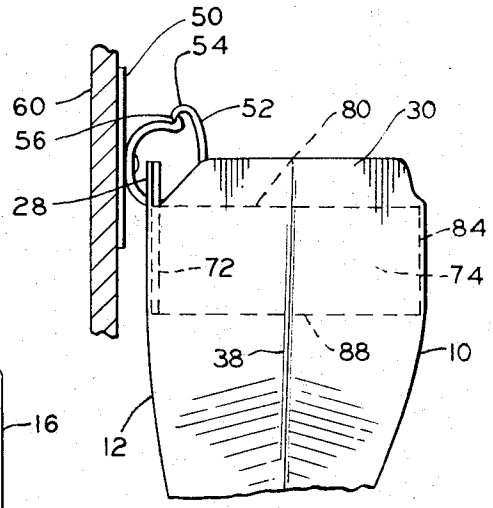


Fig. 5.

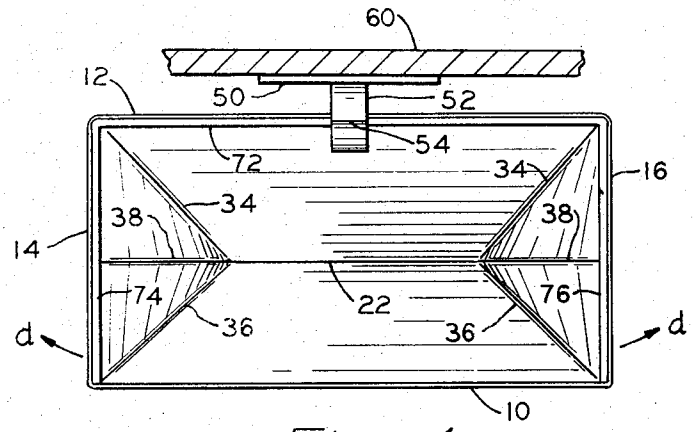


Fig. 4.

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Fig. 6.

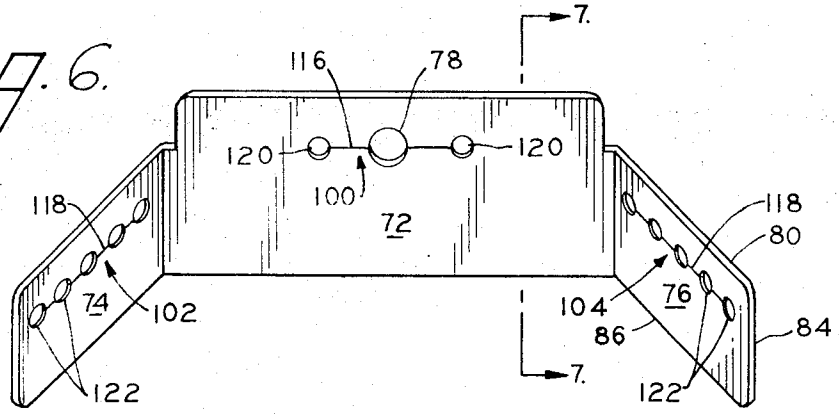


Fig. 7.

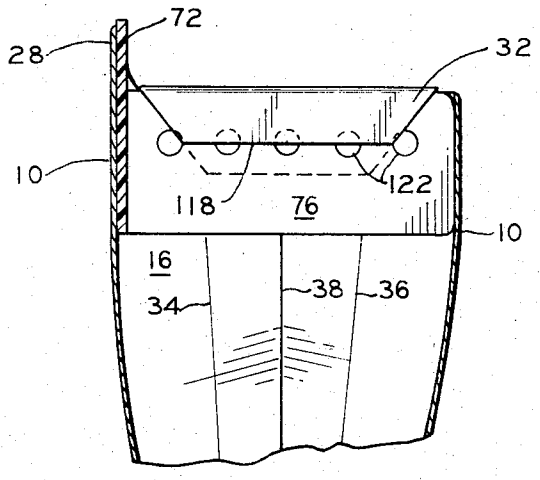
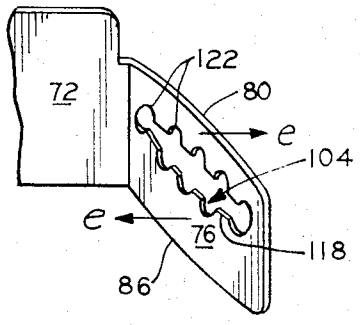


Fig. 6A.



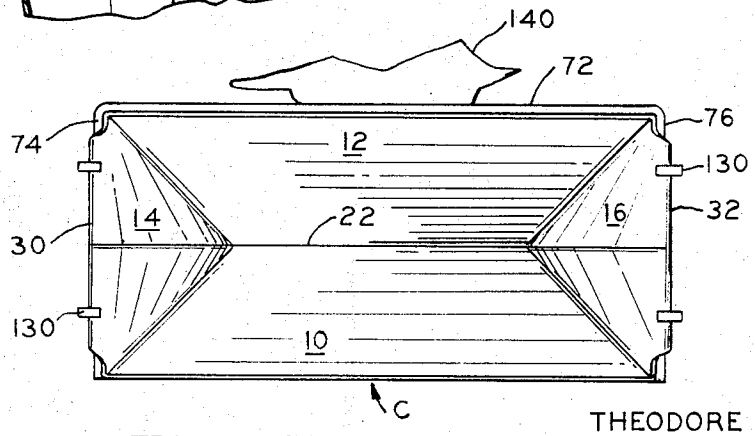


Fig. 8.

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CONTAINER FORMER

This application pertains to the art of containers and more particularly to containers constructed from a thin walled flexible material.

The invention is particularly applicable to use as a container former with a disposable paper bag-like container having a generally rectangular cross section and will be described with particular reference thereto; however, it will be appreciated that the invention has broader applications and may be used in other instances where it is desired to maintain a container having relatively flexible side walls in an opened condition.

Heretofore, particularly in hospital, home and automobile environments, disposable paper bags have often been utilized for waste and litter containers. In these instances, the bags most often include spaced apart front and rear walls interconnected by spaced apart side walls. These walls are interconnected so as to form a closed bottom end while leaving the upper end open. In many instances, there is a mounting hole disposed adjacent the open upper end in the back wall in order that the bag may be mounted and supported on a supporting device or hook. Such a hook is disclosed and claimed in my U.S. Pat. No. 3,300,164 issued Jan. 24, 1967. This type of mounting arrangement is adequate for some purposes and totally inadequate for others.

The primary problem incurred in using this supporting arrangement is that when a weight of any magnitude is disposed inside of the bag, the bag has a tendency to deform about the mounting hook so that the side walls and the portion of the front and rear walls come together and substantially close the open upper end. Thus, it is difficult to place any further articles into the bag without first spreading the walls of the bag adjacent the opened upper end apart from each other. For hospital bedside use, for example, this is oftentimes difficult for a patient to accomplish, particularly when patient movement is restricted for some medical reason. Further, and in other environments, the necessity for opening the bag before depositing articles is oftentimes burdensome for anyone attempting to place refuse or other articles in the bag when the opened upper end is in such a closed condition. This type of previous arrangement has also proved so unsatisfactory from an esthetic point of view that persons are oftentimes unwilling to utilize this type of bag and supporting device arrangement merely since it presents an unsightly condition within the environment in which it is employed. Finally, these previous arrangements have proved unsatisfactory from the standpoint that they did not permit the support of any substantial amount of weight without the bag itself rupturing at the mounting hole area. As a result, only light objects such as paper or tissue could be effectively supported.

The present invention contemplates a new and improved device which overcomes all of the above referred problems and others and provides means for maintaining the open upper end of a container in an opened condition which device is simple and economical to manufacture, maintains the container in an opened condition when weighted objects are disposed therein, provides retaining strength to the container and is adaptable to use with the container in a plurality of environments.

In accordance with the present invention, there is provided a container forming device receivable about a thin walled container having continuous side walls, a closed bottom end and an open upper end for retaining the container in an opened condition with the side walls in a spaced apart relationship. The device comprises a backing portion constructed from a material having sufficient stiffness to retain the side walls in the spaced apart relationship when the container has a foreign weight disposed therein. The backing portion includes a peripheral outline substantially identical with the peripheral outline of a portion of the open upper end when the side walls are in the spaced apart relationship. The backing portion has a transverse width sufficient to extend at least partially along the length of the container.

In accordance with another aspect of the present invention, the device is generally U-shaped to include a pair of outwardly extending wings from the backing portion for use with containers having generally rectangular cross sections. The device may be positioned either inside or outside of the container adjacent the open upper end thereof such that the backing portion extends substantially across the width of the container back wall and the wing portions extend at least partially across the width of an associated container side wall.

In accordance with another aspect of the present invention, the device is constructed from a resilient plastic material with the wing portions biased outwardly away from each other and of a length sufficient to extend substantially across the width of the container side walls.

In accordance with still another aspect of the present invention, the wing portions each include a container gripping slit extending therealong for receiving a portion of the container side walls therein to add strength to the overall container former-container combination.

In accordance with yet another object of the present invention, the backing portion also includes a gripping slit for receiving a portion of the container rear wall or for effecting the desired mounting of the container former-container combination.

The principal object of the present invention is the provision of a new and improved container forming device for maintaining the flexible side walls of a container in a spaced apart relationship to each other.

Another object of the present invention is the provision of a new and improved container forming device which is simple and economical to manufacture.

Another object of the present invention is the provision of a new and improved container forming device which provides added strength to the container when it is filled with foreigh or refuse material.

Another aspect of the present invention is the provision of a new and improved container forming device which improves the esthetic appearance of the container when it has foreign or refuse material therein.

Still another object of the present invention is the provision of a new and improved container forming device which is re-usable.

Yet another object of the present invention is the provision of a new and improved container forming device which may be employed on either the inside or outside of a flexible thin walled container.

Yet another object of the present invention is the provision of a new and improved container forming device which is readily adaptable to a plurality of different various uses in different environments.

The invention may take physical form in certain parts and arrangements of parts, a preferred embodiment of

which will be described in detail in this specification and illustrated in the accompanying drawings which form a part hereof and wherein:

FIG. 1 is a perspective view of a container received over a supporting device with a weight contained therein which does not utilize the forming device of the subject invention;

FIG. 2 is a front view of a forming device formed in accordance with the subject invention;

FIG. 3 is an end view of the forming device shown in FIG. 2;

FIG. 4 is a top view of a container received over a supporting device including the forming device of the subject invention received about the open upper end thereof;

FIG. 5 is a partial side view of the installation shown in FIG. 4;

FIG. 6 is a front view of a second forming device formed in accordance with the subject invention;

FIG. 6A is a view of one of the wings or legs in the forming device of FIG. 6 showing the gusset gripping slit in the flexed condition;

FIG. 7 is a cross sectional view taken along lines 7—7 in FIG. 6 showing a typical use of the gusset gripping slit; and,

FIG. 8 is a plan view of an alternative installation using the forming device shown in FIG. 6.

Referring now to the drawings wherein the showings are for the purposes of illustrating preferred embodiments of the invention only and not for purposes of limiting same, the FIGURES show a thin walled container A, a mounting and supporting device B and a container forming device C for use in combination with the container and the mounting and supporting device.

More specifically, and with reference to FIGS. 1, 4 and 5, container A comprises a disposable paper bag. In these FIGURES, the bag includes a front wall 10, rear wall 12 and spaced apart side walls 14,16 interconnecting walls 10,12. The container shown in the FIGURES is constructed from a single piece of thin paper material to include a conventional glued seam area (not shown) extending longitudinally along rear wall 12. The container includes open upper end 18 and closed lower end 20. The closed lower end is comprised of an overlapped seam area 22 formed and glued in a conventional manner. Disposed adjacent open upper end 18 in rear wall 12 is a mounting hole 24 located to extend through the seam area in rear wall 12.

Disposed about open upper end 18 is an upper gusset 28 associated with the rear wall and upper gussets 30,32 associated with side walls 14,16 respectively. Gussets or bellows 28,30 and 32 cause their associated walls to extend upwardly further than front wall 10 and are considered conventional in the container art. The container further includes creases 34 disposed between rear wall 12 and side walls 14,16; creases 36 disposed between front wall 10 and side walls 14,16; and, creases 38 disposed midway along side walls 14,16. These creases permit the container to be folded into a substantially flat unit for storage purposes and are also conventional with container or paper bags of this type. It should be here noted that container A as hereinabove described in detail represents only one of the containers which may be effectively utilized with the subject invention and that other bags having different peripheral configurations or being constructed from other materials, such as for example, a thin plastic material may be employed as will hereinafter be apparent to those skilled in the art.

Still with particular reference to FIGS. 1, 4 and 5, mounting and supporting device B is shown as being similar to the device disclosed and claimed in my U.S. Pat. No. 3,300,164 issued Jan. 24, 1967. This type of container mounting and supporting device includes a flexible mounting sheet 50 constructed from a dead soft aluminum which includes on the back side thereof a permanent adhesive material of a type which is known. A split-ring 52 constructed from a resilient material, such as for example, polyethylene plastic is preferred and includes an upper downwardly extending lip 54 and a lower upwardly extending lip 56. Lips 54,56 are dimensioned so as to engage each other in order to close the split ring and thereby retain the container in position thereon. The split ring is conveniently mounted to the flexible mounting sheet by a rivet 58.

In using the above described container mounting device, mounting and supporting device B is first affixed to any convenient surface such as a wall generally designated 60. Container A is then received over split ring 52 through mounting hole 24 and upper and lower lips 54,56 placed in their engaging position. The container may then be opened in order to place refuse or other articles therein as desired for any particular purpose. However, when using this single point or hook mounting approach, and after the cumulative weight of the material received in the container reaches a certain minimum level, the container becomes deformed about the split ring mounting 52 and mounting hole 24 so that rear wall 12 and front wall 10 are substantially folded in half and the opposed halves along with side walls 14,16 are forced toward each other in the direction *a* as shown in FIG. 1. As the weight in the container increases, the distance *a* decreases until open upper end 18 is substantially closed. Depending on the size and weight of the particular articles placed in the container, the container may still be used for receiving other items except that additional effort is required to open the bag in order to place the material therein. This necessity causes undesirable inconvenience, particularly when the containers are refuse bags for use in hospitals where the user may be unable to manipulate the container because of some temporary disability. Further, when the container has been filled and stretched to the configuration shown in FIG. 1, an unsightly condition is presented which oftentimes deters people from utilizing the single point container mounting devices.

To overcome these problems and inconveniences, there is provided a container former C as best shown in FIGS. 2 and 3 for use as shown in FIGS. 4 and 5. In the preferred embodiment and for use with the container hereinabove described, container former C comprises a generally U-shaped body portion 70 formed from a relatively stiff material sufficient to withstand deformation by action of the normal force applied thereto by materials placed in the container. In the preferred embodiment, a thin polyethylene plastic material is employed although a cardboard material has also been found to provide satisfactory results at less cost. Specifically, body portion 70 includes a bottom or back wall portion 72 and a pair of side wall or wing portion 74,76. Generally centrally disposed and adjacent the top end of bottom wall portion 72 is a mounting hole 78 for use in mounting the former with the container as will hereinafter be more fully described.

In the preferred embodiment, the bottom wall portion has a length *b* of substantially the same dimension as the width of rear wall **12.** Further, wing portions **74** are of a length *c* of substantially the same dimension as the width of side walls **14,16** respectively. Top edges **80** of the wing portions include rounded corners **82** joining outer-most edges **84** and rounded corners **86** joining edges **84** and bottom edges **88.** The distance between top edge **90** and bottom edge **92** of bottom or back wall portion **72** is sufficient to extend at least partially along the associated container as required by the specific container design and is of a slightly greater dimension than the distance between edges **80,88** of wing portions **74,76.** The additional width of bottom portion **72** forms a lip **96** which adds support to the container as will be hereinafter apparent. Top edges **80** may be conveniently tapered toward outermost edges if desired in order to provide ease of insertion of the former into the container.

In using the above described container former, and with particular reference to FIGS. **4** and **5,** wing portions **74,76** are moved inwardly toward each other and the former inserted into the container at the open upper end **18** thereof such that bottom or back wall portions **72** is closely received against container rear wall **12** and side or wing portions **74,76** are closely received against container side walls **14,16** respectively. As the wing portions are biased resiliently outward from each other, they exert an outward pressure against the container side walls as indicated by direction *d* in FIG. **4.** As the wing portions are of substantially the same dimension as the width of container side walls **14,16,** rounded corners **82,86** assure that the container will not be ripped or pierced during insertion of the container former. Once the container former is received in the container, it is positioned immediately adjacent the open upper end **18** as shown in FIG. **5** so that mounting hole **78** therein is aligned with mounting hole **24** of the container. With this assembly complete, the container and container former may be mounted over split-ring **52** and upper and lower lips **54,56** locked in position with each other to complete the mounting. With this arrangement, and as refuse or other materials are disposed or placed into the container, the container former assures that the container walls remain in the desired opened position so that the problems previously incurred and described hereinabove with reference to FIG. **1** are eliminated.

It has also been found that the above described container former will provide adequate results when dimension *c* of the wing portions is less than the width of container side walls **14,16** and in some installations a former comprised of only bottom or back wall portion **72** is entirely satisfactory.

Regardless of the particular configuration of container former C utilized, when the container is full of refuse or other material, it is merely necessary to remove the container from its association with mounting and supporting device B, remove the former if it is desired to reuse it, dispose of the container and its contents and repeat the steps as hereinabove described. If the former is made to be disposable, it is merely disposed of with the bag and its contents.

Another arrangement which employs the concepts of the subject invention is shown in FIGS. **6–8.** This arrangement utilizes container gripping areas integral with the container former itself in order to add strength to the container former-container combination. For the sake of clarity in explanation, like components in this arrangement will have like numerals and new components will have new numerals.

Specifically, container former C includes container gripping areas **100,102** and **104** in bottom or back portion **72** and wing portions **74,76** respectively. Gripping area **100** comprises a slot **116** extending from both sides of mounting hole **78** through and longitudinally along a segment of bottom portion **72.** Gripping areas **102,104** comprise similar slots **118** extending through and longitudinally along segments of wings **74,76.** It will be appreciated that gripping areas **102,104** are identical to each other and description will only be made to one of these slots. Disposed at each end of slot **116** are holes **120** and, similarly, a plurality of spaced apart holes **122** are included along slots **118** for providing a container gripping action as will hereinafter become apparent. Although any number of holes **122** may be utilized, five of such holes are employed in the preferred embodiment of the invention with one hole at each end of their respective slot.

Operation of container gripping area **104** is particularly shown in FIG. **6A.** To "open" the area, it is merely necessary to bias the segments of wing portion **76** on each side of slot **118** in opposite directions from each other as shown by directions *e* in that FIGURE. In this condition, a selected portion of the container may be inserted into the gripping area and the biasing force released so as to grip the selected portion therein. It will be appreciated by those skilled in the art that "opening" and "closing" of gripping areas **100,102** are effected in a manner similar to that herinabove described with reference to area **104.**

In using the container gripping areas, particular attention is directed to FIG. **7** wherein container former C has been placed inside container A adjacent open top end **18** thereof substantially identical to the arrangement shown in FIGS. **4** and **5.** In this position, gusset or bellows **32** may be folded over top edge **80** of wing **76** and threaded through the "opened" gripping area **104** therein. Following this threading, the biasing pressure exerted in opposite directions *e* may be released so as to permit wing portion **76** to again assume its normal condition. Thus, in the normal condition, gusset or bellows **32** is grippingly retained in slot **118** which resultantly adds rigidity and strength to the overall container container-former structure in order that it might be employed in environments necessitating such rigidity and strength. Holes **122** coact with the gussets so as to provide even further gripping strength for the container by permitting portions of the gusset to extend into the semi-circular halves. In other words, the holes along the slits act similarly to teeth in gripping the container gusset. In the arrangement of FIG. **7,** only gripping areas **102,104** are employed in gripping gussets **30,32** respectively. Because the container is supported by gussets **30,32** as well as mounting and supporting device B, the additional desired holding strength is realized.

Alternatively, and with particular reference to FIG. **8,** container former C may be disposed about the outside of container A adjacent the open top end **18** thereof. In this arrangement, gussets **30,32** are again folded over the top edges **80** of wing portions **74,76,** oppositely to that shown in FIG. **7,** and similarly received in gripping areas **102,104.** In this arrangement,

a plurality of clips **130** are also disposed over the gussets and wing portions in order to provide even further rigidity and strength. Although these clips may be of several types, it has been found, for example, that paper clips or molded plastic clips similar to the type used in the clothing industry are entirely satisfactory. These clips may also be employed in the arrangements shown in FIGS. **4, 5** and **7** if desired, even though the container former shown in FIGS. **4** and **5** does not include container gripping areas. Further, any number of these clips may be employed in an installation although four of the clips generally provide sufficient strength such that the container walls or bottom area will rupture before mounting hole **24** or gussets **30,32.**

The benefit particulalry derived in using the arrangement shown in FIG. **8** is that the container former itself will not be in contact with the refuse placed inside the container. In, for example, a hospital environment, this is often an important factor to prevent the container former from becoming contaminated from the tissue, gauze and the like which may be deposited in the container itself. In this manner, the container former may be continuously re-used without requiring cleaning and/or sterlization each time the container is replaced. FIG. **8** also shows an example of a practical use for gripping area **100** in the hospital environment. In this arrangement, a bed sheet or pillowcase, for example, generally designated **140** is shown as being inserted into gripping area **100** in order that the container container-former combination may be retained in a desired position for bedside use. The bed sheet or pillowcase is inserted into the gripping area by "opening" and "closing" area **100** similar to that hereinabove described with reference to FIG. **6A**. In this manner, the need for mounting and supporting device B is eliminated to thus permit attached placement of the container more nearly adjacent the user who may be limited to only restricted movement.

It has been found that in using a container A comprised of a paper bag in the arrangement shown in FIG. **4** plus clips **130,** a weight of from 4 to 6 pounds may be supported within the bag; that the arrangement shown in FIG. **7** and including clips **130** will support a weight of approximately 20 pounds; that the arrangement shown in FIG. **7** without clips **130** will support a weight of approximately 10 pounds; that the arrangement shown in FIG. **8** will support a weight of 10 pounds; and, that the arrangement shown in FIG. **8** without clips **130** will support a weight of approximately 7 pounds. These results have been obtained by testing and employing a paper bag container of the type previously described having a length of approximately 9 inches, a width of approximately 6 inches and a conventional thickness of 0.0035 of an inch. The weights which may be supported, of course, if the above parameters are varied to suit a particular container construction need.

It should also be noted that container former C having the gripping areas therein may be employed with containers not having gussets or bellows **30,32** designed therein. In this type of situation, and assuming that a common paper grocery bag is to be used, it is merely necessary to slightly "tear" the side walls from the open top end so as to custom form the necessary gussets or bellows therein. It should be further noted that the container former hereinabove described may be easily employed in other mounting environments where, and by way of example only, two mounting and supporting devices B are employed for receipt in two corresponding mounting holes **78** in bottom portion **72.** It is also possible to include a plurality of the above described gripping areas in the bottom and each wing portion of the container former. In this instance, at least slits **118** of the pluralities are generally parallel to and spaced apart from each other so as to permit the gussets or bellows to be threaded therethrough in a serpentine fashion. This arrangement is particularly advantageous if the former is contemplated for use with the thin walled polyethylene plastic bags which are presently highly used in the refuse container environment. As containers of this type stretch during loading, the serpentine threading assures that the container walls engaged by the gripping areas will be firmly retained therein and not slip from engagement therewith. It has been found that a pair of these gripping areas in each wing portion will generally suffice. In actuality, the number of different applications for the above described container former need only be limited by the ingenuity of the user.

The invention has been described with reference to the preferred embodiment. Obviously, modifications and alterations will occur to others upon the reading and understanding of this specification. It is my intention to include all such modifications and alterations insofar as they come within the scope of the appended claims or the equivalents thereof.

Having thus described my invention, I now claim:

1. A container forming device closely receivable about a portion of the inside periphery of a thin walled container having continuous front, rear and side walls, a closed bottom and an open upper end for retaining said container in an open condition with said first, rear and side walls in a spaced apart relationship, said device comprising:

a body portion constructed from a material having sufficient stiffness to retain said side walls in said spaced apart relationship when said container has a foreign weight disposed therein, said body portion including a back wall portion adapted to be associated with the inner surface of said rear wall and first and second wing portions extending generally outwardly in diverging relationship from said back wall portion at each end thereof and each of said wing portions adapted to be associated with the inner surface of one of said side walls, said wing portions each including a gripping means comprising an elongated resilient slit area extending longitudinally of its associated wing portion, said back wall portion being dimensioned to extend substantially across the width of said rear wall including means for mounting said device in a desired operative position relative to an adjacent surface, said wing portions being dimensioned to extend at least partially across said side walls, said body portion further having a transverse width sufficient to extend at least partially along the length of said container.

2. The forming device as defined in claim **1** wherein each of said slit areas further includes a plurality of recesses spaced therealong for providing additional gripping force relative said container side walls.

3. The forming device as defined in claim **2** wherein said plurality of recesses comprise a plurality of holes spaced along and generally bisected by said slits, one of

said plurality of holes being disposed at each end of said slits.

4. The forming device as defined in claim **1** wherein said body portion is constructed from polyethylene plastic.

5. The forming device as defined in claim **1** wherein said mounting means comprises at least one mounting hole extending through said backing portion adapted to receive at least one hook-like mounting device.

6. The forming device as defined in claim **5** wherein said backing portion further includes intergral means for gripping therein.

7. The forming device as defined in claim **6** wherein said gripping means comprises a resilient slit area extending longitudinally of said backing portion, said slit area further including recesses at the ends thereof.

8. The forming device as defined in claim **7** wherein said at least one mounting hole comprises one mounting hole generally centrally disposed in said backing portion, said slit extending through and generally bisecting said one mounting hole.

* * * * *