

Jan. 23, 1940.

J. A. FARMER
MEANS FOR SEALING BAGS

2,188,039

Filed June 17, 1938

2 Sheets-Sheet 1

FIG. 1.

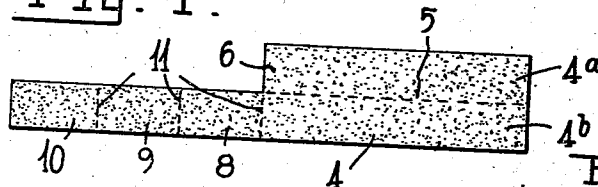


FIG. 2.

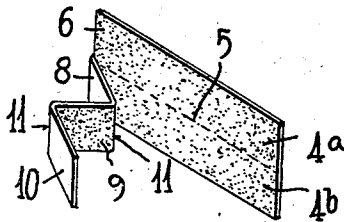


FIG. 3A.

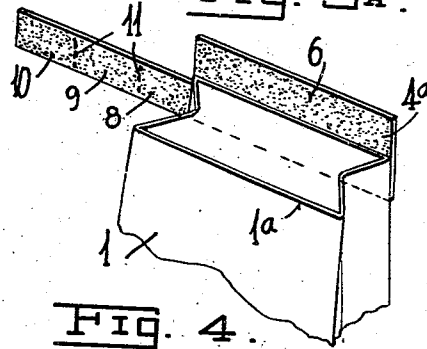


FIG. 3.

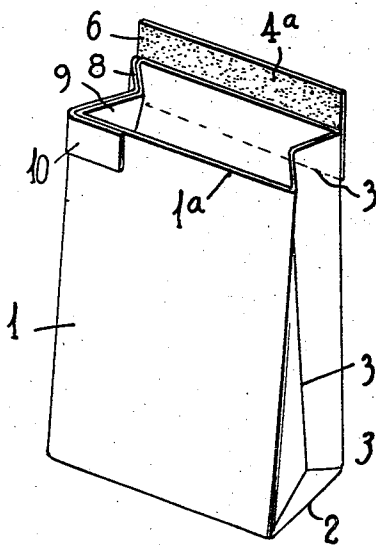


FIG. 4.

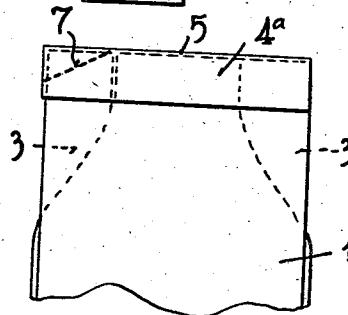
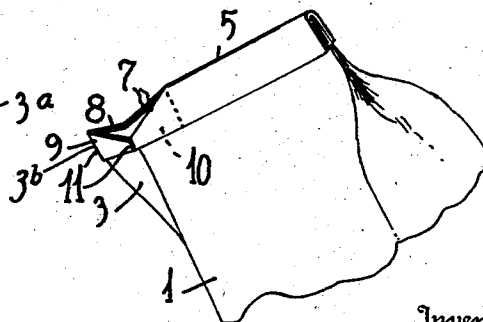


FIG. 5.



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FIG. 6.

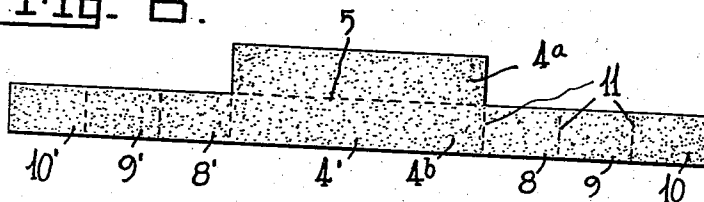


FIG. 7.

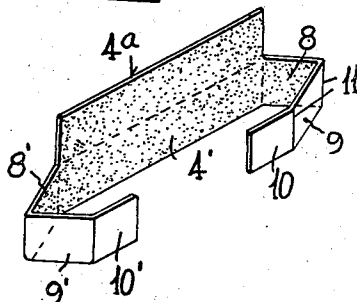


FIG. 8.

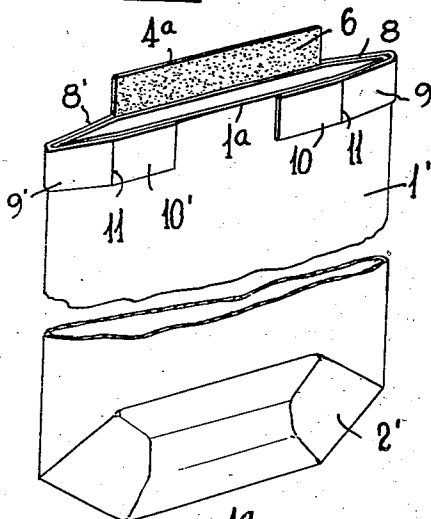


FIG. 10.

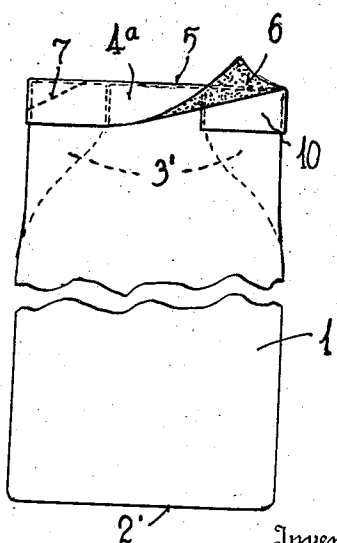
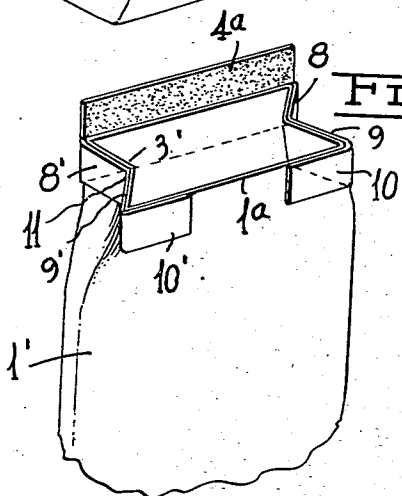


FIG. 9.



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2,188,039

MEANS FOR SEALING BAGS

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15 Claims. (Cl. 229-32)

This invention relates to means for re-inforcing and sealing the ends of flexible bags, and more particularly bags made of thin sheet material such as thin paper or cellulose sheeting.

In my prior patents, Nos. 2,093,977 and 2,093,978, both dated September 21, 1937, I have shown and described novel means for closing the ends of bellows-sided bags having infolded portions constituting gussets, and for cutting off the corner of such bags on a diagonal line and pulling out the gusset thus cut off to provide a pouring spout, from which the contents of the bag can be dispensed.

Where exceedingly thin, flexible material, such as cellulose sheeting, is, however, employed, it is found that the material is too flimsy and does not have sufficient stiffness to enable the gusset to be pushed back in place after it has been pulled out to form a pouring spout, as described in my said prior patents, so that the bag may be resealed.

It has furthermore been found that thin cellulose sheeting, when sharply folded to form a gusset, as in the bellows sided bags referred to, is so weakened that it tends to tear or split along the fold lines, especially at the extreme end of the bag.

One of the objects of the present invention, therefore, is to devise simple and efficient means for reinforcing and strengthening such thin, flexible material adjacent the upper edge or mouth of the bag so that it will be prevented from tearing or splitting along the fold lines, and at the same time the walls of the gusset at the upper end of the bag will be given sufficient strength and stiffness to enable the gusset to be readily pulled out and pushed in, as described.

A further object is to provide such reinforcing and stiffening means as an integral part of a sealing tab of sheet material, adapted to straddle the mouth of the bag, as disclosed in my said prior Patent No. 2,093,978.

In other prior patents, such as Nos. 2,093,974 and 2,093,975, also issued on September 21, 1937, I have shown ordinary satchel-bottom bags closed by means of my improved sealing tabs and, by reference to these patents, it will be seen that when a bag of this type is closed by having its walls brought together at the end in flat relation, the flattened end of the bag projects at the sides laterally beyond the body of the bag when filled. This is objectionable, since it gives rise to certain difficulties in packing the filled bags in cartons for shipment or storage.

A further object of the present invention is to

provide improved sealing and reinforcing means whereby the side portions of such satchel bottom bags adjacent the upper end or mouth of the bag, after the bag has been filled, may be folded inwardly to constitute gussets, after the manner of a bellows-sided bag, the mouth of the closed bag after the end portions have been thus folded in, being no wider than the body of the bag.

In order that the invention may be readily understood, reference is had to the accompanying drawings forming part of this specification and in which:

Fig. 1 is a plan view of a blank constituting one form of my improved sealing tab;

Fig. 2 is a perspective view of the tab when folded into position to be applied to the mouth of a gusset type or square bottom bag;

Fig. 3 is a perspective view showing my improved sealing and reinforcing tab applied to the mouth of such a bag;

Fig. 3^a is a similar view showing a slightly different method of applying the tab;

Fig. 4 is a fragmentary side elevation showing the upper end of a filled bag completely closed, with the sealing tab in position;

Fig. 5 is a perspective view showing the upper end of the gusset cut off and pulled out to form a pouring spout;

Fig. 6 is a view similar to Fig. 1, but showing a modified form of sealing and reinforcing tab designed especially for use in connection with ordinary satchel-bottom bags;

Fig. 7 is a perspective view of the tab shown in Fig. 6 as it appears when partially folded;

Fig. 8 is a perspective view showing a satchel-bottom bag in its original flat condition, with my improved tab shown in Figs. 6 and 7, applied thereto;

Fig. 9 is a fragmentary perspective view of the upper part of such a bag after it has been filled with fluent material, illustrating how the side portions are folded in to constitute gussets; and Fig. 10 is a side elevation of the filled bag or package as it appears when the sealing tab is partially folded down into final position.

Referring to the drawings in detail, and first more particularly to Figs. 1 to 5 thereof, I have illustrated a gusset type bag 1 having a square bottom 2 and having its sides in-folded along a longitudinal center line 3^a to constitute gussets 3. My improved sealing and reinforcing tab is designated in its entirety by the numeral 4 and is cut from suitable sheet material such as metal foil, paper or light cardboard, the material being

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preferably heavier and stiffer than the thin sheet material of which the bag itself is made.

As in my said prior patents, the present sealing and reinforcing tab 4 comprises a body portion of a length substantially equal to the width of the bag to be sealed and foldable along a longitudinal median line 5 so as to form front and rear main panels 4^a and 4^b. In the present case, however, I form integral with the body portion of the tab and extending laterally from one end thereof a wing portion comprising a series of auxiliary panels 8, 9 and 10, these being preferably of the same width as the main panel 4^b to which they are connected.

The auxiliary panels 8, 9 and 10 are foldable about transverse lines 11 with respect to each other and to the main panel 4^b. The fold lines 5 and 11 are preferably weakened as by creasing, scoring or partially perforating, so that the material will readily fold along such lines when bent over.

One side of the entire tab, including both the main and auxiliary panels, is coated with an adhesive. This may be of the ordinary type requiring the application of a liquid, or it may be of the non-drying pressure responsive type such, for example, as an adhesive having a rubber latex base. Preferably, however, the adhesive which I employ is of the heat sensitive type, such, for example, as that sold under the trade name "Thermium". Adhesives of this type are normally dry and free from tackiness, but are softened and rendered plastic by the application of heat, and when so softened adhere securely to any surface to which they are applied. I further prefer to employ a heat-sensitive adhesive which is, like that sold under the trade name "Thermium", capable of adhering firmly to cellulose sheeting and the like, as well as paper.

Instead of coating the tab in advance, with an adhesive, as above mentioned, a suitable adhesive may, of course, be applied to the tab or bag at the time of the sealing operation.

In use, my improved tab is applied to the mouth of a bellows-sided bag, as shown in Fig. 3, with one of the main panels 4^b cemented to the marginal portion of one side only of the open end of the bag, the other main panel 4^a projecting beyond the edge of the bag. The auxiliary panels 8 and 9 are cemented to the upper portion of the gusset 3, these panels being of such length that the fold line 11 between the same coincides with the fold line 3^a of the gusset. The end auxiliary panel 10 is folded around and cemented to the side of the bag opposite that to which the main panels are secured.

In this way, all three longitudinal fold lines associated with the gusset of the bag adjacent the mouth thereof are protected and reinforced by the folds of the auxiliary panels 8, 9 and 10, and the upper end of the gusset itself is rendered relatively strong and stiff.

Preferably the tab is applied to the bag 1, as shown in Fig. 3, before the bag is filled, but it may be applied as shown in Fig. 3^a, with the main panel only secured to the bag. After it has been filled, if in the condition shown in Fig. 3^a, the auxiliary panels 8, 9 and 10 are folded into and around the gusset, as shown in Fig. 3. The gussets at the top of the bag are pressed together and collapsed so that the two side walls of the bag engage each other in flat relation, and the main panel 4^a is then folded down over the mouth of the bag, as shown in Fig. 4, and cemented in position by the application of heat.

The usual method of applying heat is by means of an electrically heated iron or tool, and for this reason the lower edges of the skirts of my improved sealing tab are preferably made straight, so that the heating tool may readily cover the entire surface thereof.

As in my prior patents above referred to, I preferably form on one of the main panels of the tab a mark 7 defining a diagonal line of severance along which the corner of the assembled bag and tab panels may be cut off to provide a dispensing opening. After the corner has been thus cut off, the adjacent gusset portion may be pulled out to form a pouring spout 3^b as indicated in Fig. 5. It will be noted that this spout comprises portions of the panels 8 and 9, and is thus reinforced by said panels and rendered relatively stiff. As a result, the spout may be pushed back into its original position when desired, and the bag resealed, as described in my said prior patents.

While I have shown the auxiliary panels 8, 9 and 10 as disposed at one end only of the main panels of the tab, and as reinforcing one gusset only, it is of course obvious that similar panels may be formed at the other end of the main panels and used to reinforce the gusset at the other side of the bag, if desired. The chief reason for reinforcing the end of the gusset, however, is in order to enable it to be pulled out to form a pouring spout, and pushed in again, without splitting or tearing, and therefore in many cases it is necessary to provide the reinforcing panels only at the side of the bag which is to be cut off to provide the dispensing opening.

Referring now to Figs. 6 to 10, I have illustrated one of my improved tabs as applied to an ordinary satchel-bottom bag.

The tab 4' is the same as the tab 4 illustrated in Fig. 1 except that I have shown a second wing portion, comprising an additional series of auxiliary panels 8', 9' and 10' extending from the end of the tab opposite the panels 8, 9 and 10.

The bag is designated 1' and is provided with the usual satchel bottom 2'. Bags of this type are usually made and shipped in flat condition, like an envelope, with their side walls in contact throughout their width.

In use, my improved tab is applied to the mouth of the bag, as shown in Fig. 8, with the fold lines 11 between the panels 8 and 9 and 8' and 9' coinciding with the single fold lines at the sides of the bag. Thus, it will be observed that the main panel is shorter than the width of the bag and when applied as shown, the main panel 4^b and the auxiliary panels 8 and 8' are secured to one side of the open end of the bag, while the panels 9 and 10 and 9' and 10' are folded around and applied to the opposite side of the bag. Thus the fold line at each edge of the bag is strengthened and reinforced.

After the improved tab has been applied to the flat empty bag as shown in Fig. 8, the bag is filled, preferably by causing the mouth to open by applying pressure at the side edges, as illustrated in Fig. 8 of my said prior Patent No. 2,093,975.

After the bag has been filled, it assumes a rounded form, and if the side walls were then brought together in flat relation, the end of the bag would project laterally beyond the body thereof, as shown in Fig. 9 of my said prior Patent No. 2,093,975.

I have discovered that this can be avoided by pressing in the side edges of the bag adjacent

the mouth to form gussets 3', as illustrated in Fig. 9. In doing this, the panels 8 and 9 and 8' and 9' are caused to fold relative to each other in a direction the reverse of that in which they were originally folded, the fold line 11 between such panels preferably being weakened in such a manner as to permit ready folding in either direction. The folding inwardly of the upper portions of the side edges of the bag, as above described, is made possible by reason of the upper portions of the bag being reinforced and stiffened by the auxiliary panels 8 and 9 and 8' and 9', having a weakened fold line between them.

After the upper end of the side portions of the bag have been pressed inwardly to form gussets as described, the side walls are brought together in flat relation, thus collapsing the gussets between them, and the main panel 4* of the tab folded over and secured by heat to the opposite wall of the bag, and overlies the auxiliary panels 10 and 10'. In this way, it is possible to seal the mouth of an ordinary satchel bottom bag in such a way that the sealed end does not project laterally beyond the body of the bag, but the entire bag is of substantially uniform width throughout, the same as a bellows-sided bag. In other words, by my improved method, I am enabled to produce, in an ordinary satchel bottom bag, a closure comprising gussets and having all of the advantages of a bellows-sided bag.

In Fig. 10, I have illustrated a diagonal line 7 along which the corner of the sealed bag can be cut off to provide a dispensing opening and from which opening the gusset can be pulled out to provide a pouring spout in the same manner as illustrated in Fig. 5, in connection with a bellows-sided bag.

As shown in the drawings, I have illustrated my improved tabs as applied to the bags in such a manner that the fold line 5 between the main panels and the upper edges of the auxiliary panels substantially coincides with the extreme upper edge 1* of the bag walls. With this arrangement, it is of course apparent that the bag walls themselves are not folded over during this sealing operation. In other words, the tab is positioned relative to the bag in the manner illustrated in Figs. 5 and 6 of my said prior Patent No. 2,093,975.

In this case, the width of the auxiliary panels 8, 9 and 10 is substantially equal to the width of the main panel 4* to which they are attached.

In some cases, however, it may be desirable to position the improved tab relative to the bag in the manner illustrated in Figs. 1, 3 and 4 of my said prior Patent No. 2,093,975, so that, when the main panel 4* is folded over to seal the bag, the ends of the bag walls themselves are also folded over. In this case, the auxiliary panels are made of a width somewhat greater than that of the main panel to which they are attached, and terminate substantially flush with the edge 1* of the bag, so that the upper portions of the gussets, with the auxiliary panels secured thereto, are folded over with the bag walls when the bag is sealed, the weakened fold line 5 being extended across the upper portion of the auxiliary panels so as to cause them to fold readily when the bag walls are folded. This arrangement is not illustrated in the drawings but is thought to be obvious from an inspection of my said prior Patent 2,093,975 above referred to.

What I claim is:

1. As an article of manufacture, a re-inforcing and sealing device for bags comprising a tab of

sheet material including a body portion foldable along a longitudinal median line, and a series of connected panels of less width than said body portion extending integrally from at least one end thereof and foldable relative to said body portion and to each other.

2. As an article of manufacture, a re-inforcing and sealing device for bags comprising a tab of sheet material including a body portion foldable along a longitudinal median line to form a pair of main panels, and a series of connected auxiliary panels of less width than said body portion extending integrally from at least one end of one of said main panels and foldable relatively thereto and to each other.

3. As an article of manufacture, a re-inforcing and sealing device for bags comprising a tab of sheet material including a body portion of a length substantially equal to the width of the bag to be sealed, said body portion being foldable along a longitudinal median line to form a pair of main panels, and a series of connected auxiliary panels extending integrally from at least one end of one of said main panels and foldable relatively thereto and to each other, said auxiliary panels being of substantially the same width as the main panel from which they extend.

4. As an article of manufacture, a re-inforcing and sealing device for bags comprising a tab of sheet material including a body portion formed with a weakened longitudinal median line about which it may be folded to form a pair of main panels, and a series of connected auxiliary panels extending integrally from at least one end of one of said main panels, said auxiliary panels being of less width than said body portion and having weakened transverse fold lines formed between them and said main panel and also between themselves.

5. As an article of manufacture, a re-inforcing and sealing device for bags comprising a tab of sheet material including a body portion foldable along a longitudinal median line, and a series of connected panels of less width than said body portion extending integrally from at least one end thereof and foldable relative to said body portion and to each other, one side of said tab being coated throughout with an adhesive.

6. As an article of manufacture, a flexible bag in flattened form having opposite side walls, and having a reinforcing and sealing tab of sheet material permanently secured to the margin of its open end, said tab comprising a main portion applied to one side wall and foldable about a line extending parallel with and adjacent the edge of the bag end, and an integral auxiliary portion of less width than the main portion extending around each side edge of the bag and applied to the other side wall.

7. As an article of manufacture, a flexible bag in flattened form having opposite side walls, and having a reinforcing and sealing tab of sheet material permanently secured to the margin of its open end, said tab comprising a main portion applied to one side wall and foldable about a line extending parallel with and adjacent the edge of the bag end, said main portion being shorter than the width of the bag, and an integral auxiliary portion forming a continuation of said main portion and comprising a plurality of panels, foldably connected with said main portion and with each other, one of said panels being applied to the same side wall as said main portion, and another of said panels being applied to the other side wall.

8. As an article of manufacture, a flexible bag in flattened form having opposite side walls, and having a reinforcing and sealing tab of sheet material permanently secured to the margin of its open end, said tab comprising a main portion applied to one side wall and foldable about a line extending parallel with and adjacent the edge of the bag end, said main portion being shorter than the width of the bag, and an integral auxiliary portion forming a continuation of said main portion and folded around the side edge of the bag in contact with both side walls thereof, the edge of said auxiliary portion substantially coinciding with the edge of the bag end.

9. As an article of manufacture, a flexible, bellows-sided bag, in flat form, comprising opposite side walls and infolded, longitudinally disposed gussets lying between them, and having a reinforcing and sealing tab of sheet material permanently secured to the margin of its open end, said tab comprising a main portion applied to one side wall only, projecting longitudinally beyond the same, and covering substantially the full width thereof, and an auxiliary portion forming a continuation of said main portion, said auxiliary portion being applied to one of said gussets and extending across the longitudinal fold thereof, and the edge of said auxiliary portion substantially coinciding with the edge of the bag end.

10. As an article of manufacture, a flexible, bellows-sided bag, in flat form, comprising opposite side walls and infolded, longitudinally disposed gussets lying between them, and having a reinforcing and sealing tab of sheet material permanently secured to the margin of its open end, said tab comprising a main portion applied to one side wall only, projecting longitudinally beyond the same, and covering substantially the full width thereof, and an auxiliary portion forming a continuation of said main portion, said auxiliary portion being made up of a series of panels foldably connected with said main portion and with each other, two of said panels being applied to one of said gussets, and a third panel being applied to the other side wall of the bag, the fold lines between said panels substantially coinciding with the fold lines of said gusset.

11. A package comprising a straight sided, satchel-bottom bag filled with any desired material, the upper ends of the side walls of said bag being brought together at the top in flat relation, and a sealing tab straddling and securing them in such position, said tab having at its ends integral wing portions cemented to and stiffening the side edge portions of the bag walls

adjacent the mouth, said stiffened side edge portions being tucked in to form gussets confined between the side walls, whereby the end of the closed bag is no wider than the body thereof.

12. A package comprising a bellows-sided bag having at its sides longitudinally disposed infolded portions constituting gussets, and filled with any desired material, the upper ends of the side walls of said bag being brought together at the top in flat relation, and a sealing tab having a main body portion of a length substantially equal to the width of the bag straddling said walls and securing them in such position, said tab having at one end at least integral auxiliary portions extending into the gusset and secured to the walls thereof, said main and auxiliary portions being separated by weakened fold lines substantially coinciding with the fold lines of said gusset.

13. A package comprising a bellows-sided bag having at its sides longitudinally disposed infolded portions constituting gussets, and filled with any desired material, the upper ends of the side walls of said bag being brought together at the top in flat relation, and a sealing tab having a main body portion of a length substantially equal to the width of the bag straddling said walls and securing them in such position, said tab having at one end at least an integral auxiliary wing portion folded around both outer fold lines of the gusset, and cemented in position, said wing portion and main body portion being disposed in overlapping relation.

14. A package comprising a bellows-sided bag having at its sides longitudinally disposed infolded portions constituting gussets, and filled with any desired material, the upper ends of the side walls of said bag being brought together at the top in flat relation, and a sealing tab having a main body portion of a length substantially equal to the width of the bag straddling said walls and securing them in such position, said tab having at one end at least an integral, auxiliary wing portion folded separately around each outer fold line of the gusset, a part of said wing portion lying within said gusset and being cemented to the walls thereof.

15. The method of closing a straight sided, satchel-bottom bag which comprises applying sheet material to the margin of the mouth of the bag to reinforce the same, tucking in the reinforced side edge portions of the bag to form infolded gussets, and bringing the ends of the side walls together in flat relation, with the said gussets between them, and securing them in such position.

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