Sept. 7, 1954 C. W. VOGT 2,688,435

CHAINED ENWRAPMENT

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Fig. 1.

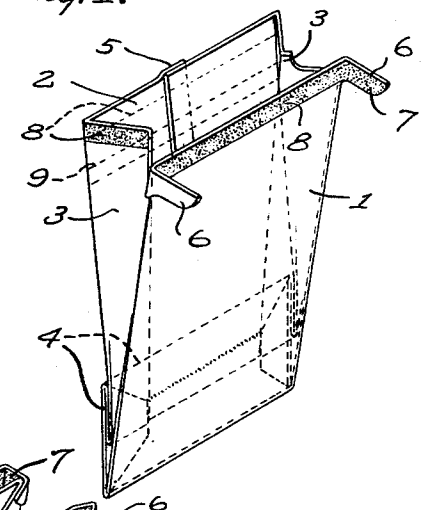


Fig. 2.

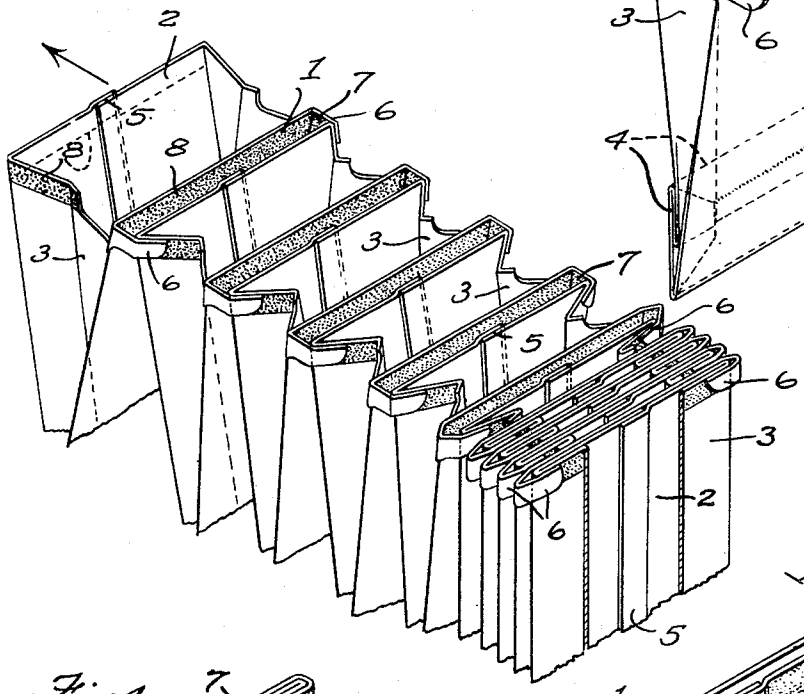
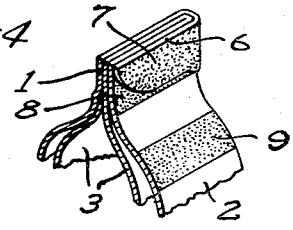


Fig. 4



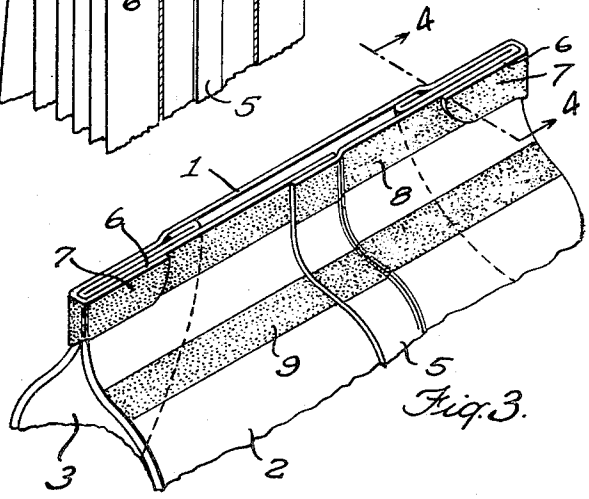


Fig. 3.

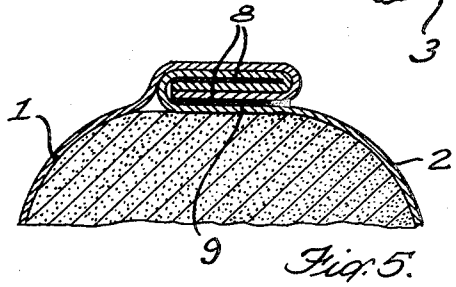


Fig. 5.

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Fig. 6.

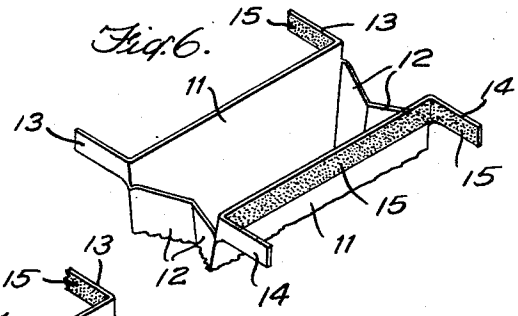


Fig. 7.

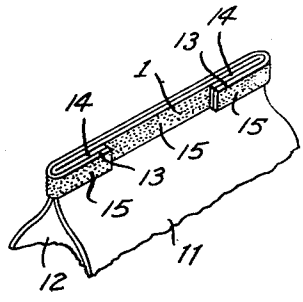


Fig. 8.

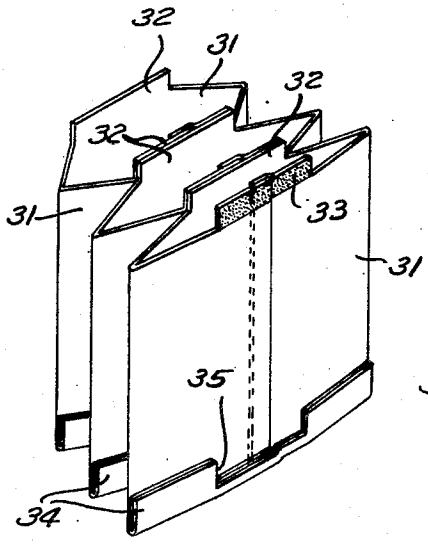


Fig. 10.

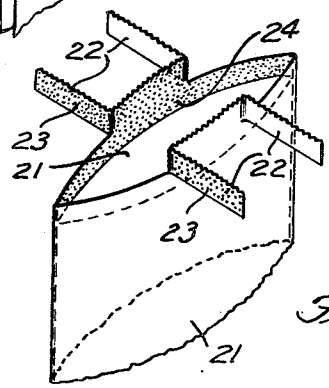


Fig. 9.

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2,688,435

CHAINED ENWRAPMENT

Clarence W. Vogt, Norwalk, Conn.

Application March 5, 1949, Serial No. 79,806

3 Claims. (Cl. 229—53)

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This invention relates to enwrapments and in particular to enwrapments which are adapted to be disposed in pairs, series, or chains.

It is an object of the present invention to provide a plurality of enwrapments connected into a chain or series to facilitate the supporting, advancing, opening, filling, closing, sealing or other operations to which enwrapments may be subjected during their use for packaging. One of the objections to packaging in bags under present commercial practices is the required manual handling of the individual bags or enwrapments. By the use of the present invention the amount of manual handling may be minimized. This results in substantial savings in the time and expense required for packaging and at the same time permits packaging with a greatly decreased possibility of contamination which is highly desirable in packaging foods, drugs, and many other products.

Another object is to provide a plurality of enwrapments which may be secured together in pairs or series by chaining means which may be formed by only slight modification of present day commercial bag making machinery.

Another object is to provide enwrapments adapted to be secured together in a pair, series or chain with the chaining elements being fabricated as integral portions of presently widely used bag constructions without detracting from the appearance or usefulness of such bags, or requiring additional material.

A still further object is to provide an enwrapment with integral elements disposed in the region of the mouth of the enwrapment to facilitate connecting the enwrapment into a series and which assists in providing a siftproof closure for the enwrapment when it has been filled and separated from the series or chain.

Other objects and advantages will become apparent from the following detailed description accompanied by the drawings in which:

Figure 1 is a perspective view of an enwrapment embodying the present invention;

Fig. 2 is a perspective view of a portion of a series or chain of enwrapments of the type shown in Figure 1 to illustrate the use of said enwrapments in packaging;

Fig. 3 is an enlarged perspective view of an enwrapment of the type shown in Figure 1 to illustrate how such an enwrapment may be closed and sealed;

Fig. 4 is a fragmentary perspective view taken substantially in the direction of line 4—4 on Fig. 3;

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Fig. 5 is an enlarged section through the top portion of a closed and sealed enwrapment to illustrate the completed closure;

Fig. 6 is a fragmentary perspective view of a portion of a modified form of enwrapment embodying the present invention;

Fig. 7 is a perspective view of a portion of a bag of the type shown in Fig. 6 to illustrate a closure for such a bag;

Fig. 8 is a perspective view of a portion of a chain of enwrapments of the type shown in Fig. 6 to illustrate their use in packaging;

Fig. 9 is a perspective view of a portion of another modified form of enwrapment embodying the present invention; and

Fig. 10 is a perspective view of a further modified form of enwrapment embodying the present invention connected into a series or chain.

This application is a continuation-in-part of my copending applications Serial No. 51,946 filed September 30, 1948, and entitled Bag Assemblies, now Patent No. 2,653,752; Serial No. 66,990 filed December 23, 1948, and entitled Chained Enwrapments; and Serial No. 70,911 filed January 14, 1949, and entitled Bags and Methods of Making the Same, now Patent No. 2,653,751.

Figure 1 illustrates an enwrapment or bag of the type known commercially as an automatic bag. In this form of bag there are opposed side panels 1 and 2, the marginal edges of which are connected by end walls formed by infolds or gusset walls 3. The bottom seal of the bag indicated by the numeral 4 in Fig. 1 is constructed so that when the bag is opened it will have a flat bottom and is adapted to stand by itself. Such bags are conventionally fabricated from a continuous web of sheet material, the sheet material being formed to tubular configuration with the infolds or gusset walls provided therein and the transverse marginal edges of the web of sheet material being overlapped and adhered together along a longitudinal seam 5. At the desired predetermined interval the tubular configuration is severed and the individual bags are completed by the formation of a bottom seal. As mentioned, Figure 1 illustrates a bottom seal which is machine made to permit the bag to stand upright when open.

In accordance with the present invention the mouth end of the bag is provided with one or more elements or tabs 6 to facilitate connection of the bag into a series or chain and to facilitate opening of the bag mouth in order to place commodities therein during packaging. In the form of the invention shown in Figure 1 the tabs or elements 6 have been struck from a por-

tion of the gusset walls and a pair of such tabs have been provided, one of which is formed from each of the gusset walls. These tabs are adapted to be folded or hinged at approximately the intersection of the side panel 1 with the gusset walls 3 and may be bent so as to extend outwardly from the side panel 1. Desirably, the tab portions may be coated with suitable adhesive material indicated by the numeral 7 and the tabs may be adhered to a portion of the next adjacent bag in the series.

As shown in Fig. 2 the tabs may be adhered to the gusset walls 3 of the next adjacent bag and it may be seen that the length of the tabs is such that they do not extend for the full distance of the gusset walls. In this way the tab portions may be secured to the next adjacent bag, adjacent the mouth thereof, so that all of the bags in the series may have their mouths in substantially the same plane. Fig. 2 illustrates that when a series of bags are connected together in this fashion, tension placed on a leading bag in the series will cause it to open and in addition will cause a progressive opening of the succeeding bags in the series, as well as facilitate their advancement to a position where it is desired to fill them.

In the case of bags of the automatic type it may be desirable to completely open the bag for filling and this may be accomplished by connecting together lower portions of the bags as more fully described in my copending application Serial No. 70,911 referred to above.

The tabs or elements 6 may be fabricated from the sheet material of which the bag is made while it is in the form of a flat web or during formation of the web to tubular configuration. Preferably in fabricating the tabs or elements 6, rounded corner portions should be formed and particularly at the junction of the tab or element with the side panel to increase the strength of the connection between these parts.

The adhesive coating indicated by the numeral 7 may also be applied to the web of sheet material prior to the formation of the bag. To provide a closure which will be secured and siftproof, additional adhesive material indicated by the numeral 8 may be applied to the balance of the bag wall portions, partially or completely surrounding the mouth of the bag. If the adhesive is to be applied completely around the mouth of the bag it may comprise a stripe extending transversely of the web of sheet material and completely thereacross. The adhesive should be applied to that side of the web which will become the outer surface of the bag and thus the adhesive areas 7 on the tabs and the adhesive areas 8 on the balance of the bag walls may be simultaneously applied.

It is believed preferable to utilize an adhesive of a type which may be reactivated so that the same adhesive material may be reused to seal the bag mouth after it has been used in chaining the bags. Such adhesives may be thermoplastic in nature and will be activated to tacky condition by the application of heat. Adhesives of this type are available and may be readily applied to a web of sheet material in any suitable manner such as by printing. When dried, the web may be handled in its customary manner and since the adhesive is not tacky until heat activated it will not interfere with formation of the bags. When it is desired to connect the bags into a series or chain, any portion of the adhesive 7 on the tabs or elements 6 may be activated to tacky condition

and the tabs adhered to portions of the adjacent bag to obtain the chain or series illustrated in Fig. 2.

When it is desired to separate the bags from the series or chain which will usually be at the time of filling, or thereafter, the adhering portion of the tab 6 may have its adhesive coating 7 activated and the tab may be readily peeled or separated from the adjacent bag. At this point the adhesive areas 7 and 8 may be utilized to effect an excellent closure for the filled bag. The adhesive areas 7 and 8 may be activated to tacky condition and the tabs or elements 6 folded around the ends of the bag and onto the surface of the side panel 2 as shown in Fig. 4. Since the side panel 2 has a coating of adhesive 8 around the top of the mouth of the bag the tabs 6 will readily adhere thereto with their adhesive faces 7 facing outwardly.

Further, the portions of the adhesive area 8 on the gusset walls 3 will cause these gusset walls to be securely adhered together providing a siftproof closure at these portions of the bag mouth (see Fig. 4). If the mouth portion of the bag is folded over approximately on a line extending along the bottom of the adhesive area 8 and the bottom portion of the tabs 6, the mouth portions of the bag will adhere to the side panel 2 of the bag onto which they have been folded. A second fold of these top portions of the bag, which results in a closure sometimes referred to as a confectioner's fold, brings the adhesive portion 8 along the side panel 1 into contact with the opposite side panel 2 of the bag to provide the closure illustrated in Fig. 5. If desired, the bag wall 2 may be provided with an additional stripe of adhesive 9 at the point where it is to receive the folded over portions of the bag mouth to insure holding such sealed portions to the bag wall. The adhesive area 9 may best be seen in Figs. 3 and 4. As may be seen in Fig. 5 the closure thus provided results in a relatively flat top for the package which permits stacking of completed packages on top of each other.

Obviously, many other forms of closure may be utilized. In some instances it may be desirable to adhesively coat only the tab elements and then to remove the tabs by cutting or tearing them off when effecting closure of the bag mouth.

Figs. 6 through 8 illustrate a modified form of the invention which is applied to bags of the infolded or gusset type. Each bag comprises a pair of opposed side panels 11, the marginal edges of which are connected by infolds or gusset walls 12. In the region of the top portion of the bag each of the gusset walls has been cut to form oppositely extending tabs or elements 13 and 14 which tabs may be bent to extend outwardly from the side panels 11 to facilitate their connection to tabs or elements of adjacent bags as shown in Fig. 8.

Each of the bags may be provided with an adhesive stripe 15 extending completely around the mouth portion of the bag and in this way the tab elements 13 and 14 will be provided with an adhesive coating to permit adherence therebetween. As previously described, in connection with the form of invention shown in Figs. 1 through 5, the opening of a leading bag in the chain will cause a progressive opening of succeeding bags in the chain so that as the bags are advanced to filling position the bag mouths will be opened. By utilizing an adhesive which may be reactivated, the tab portions can be readily separated to remove the bags from the chain when desired.

Closure of the filled bags may be effected by

placing the mouth portions of the bags together and bending the tab elements 13 and 14 around the end portions of the bag mouth to the position illustrated in Fig. 7. Closure may be completed by performing a double fold of the mouth portions of the bags to a position similar to that indicated in Fig. 5. Variations in the chain may be produced by connecting the tab elements of adjacent bags in other manners. For example, the spacing between adjacent bags in a chain may be determined by the amount of overlap of the tab elements of adjacent bags. Such spacing can be controlled to meet the requirements of the particular filling apparatus which is to be utilized to place commodities into the bags.

It may also be noted that in the form of invention illustrated in Figs. 6 through 8, that the provision of the integral tabs 13 and 14 does not affect the fabrication of the bags by conventional bag machinery, and does not require the use of additional materials to obtain the chaining means. Further, the bags may be closed and sealed so that the tab elements 13 and 14 will not be apparent and thus cannot be said to detract from the appearance of the completed package after the function in chaining the bags and opening the bag mouths has been fulfilled.

While for purposes of simplicity the drawings illustrate bags of only a single wall thickness, it is contemplated that the present invention may be applied to bags formed of laminated sheet material, such for example, as are disclosed in my United States Letters Patent No. 2,234,065 issued March 4, 1941. Said patent discloses a bag construction of laminated sheet material with an inner layer of heat sealable material having opposed side panels and connecting infolded or gusseted side or edge walls. The outer lamina or layer comprises opposed side panels and connecting edge or side walls fabricated of a non-fusible and protective material. Such bags are provided with an open end or mouth at one terminal edge of the opposed side panels.

As is shown in Fig. 6 of the present application tab elements may be struck from an outer protective layer of the laminated sheet material to permit chaining of the bags as illustrated in Fig. 8. The formation of the tab elements may provide windows or cut-away portions in the outer protective layer extending partially or completely along the infolded or gusseted walls of the bag. Thus, when the bag mouth is heat sealed the inner fusible layer of the laminated sheet material may be autogenously welded, partially or completely, across the bag mouth. The infolded side walls of the fusible material are securely adhered to each other and to the portions of the side panels which extend in overlapped relation with the infolded walls. The removal of the outer layer of protective material in these areas permits this sealing of the gusset walls and facilitates heat sealing of the mouth of the bag.

As explained in my issued patent, above referred to, the portions of the opposed side panels between the gusset walls on the complete bag mouth may be left unsealed for filling purposes. Closure of such a construction may be effected by sealing uniformly across the bag mouth throughout the gusseted walls and the side panels, or may be sealed over varying areas across the bag mouth as explained in said patent.

The present invention may, therefore, not only effect the formation of tab elements to facilitate connecting bags into pairs, series or chains but simultaneously causes exposure of the gusset walls of the inner heat sealable layer of laminated sheet material which as explained in my previously issued patent facilitates the making of an especially secure and siftproof seal across the mouth portion of the bag.

Fig. 9 illustrates another modified form of the invention utilizing an enwrapment of the type known as a flat or envelope type bag. Such a bag comprises opposed side panels 21 which are secured together at their side edges to form a tube. In this form of the invention, top portions of the side panels 21 are cut along a line parallel with the mouth of the bag to provide two pairs of tabs 22 which may be folded to extend outwardly from each of the side panels 21. The surfaces of the tabs 22 facing the interior of the tube may be coated with a suitable adhesive material indicated by numeral 23 in Fig. 9. The tabs 22 may thus be connected to similar tabs of adjacent bags to provide a chain. Pulling upon the two pairs of tabs of any bag will serve to open the mouth of the bag to permit filling of the bag.

To facilitate the application of adhesive to the tabs 22, it is believed desirable to provide an adhesive stripe completely across the web so that the portions of the side panels 21 between the tabs may also bear an adhesive coating. In addition, it is believed preferable that the adhesive material be applied to the interior surfaces of the side panels 21 at a point below the tabs 22. Such adhesive material, indicated by the numeral 24, may be applied simultaneously with the adhesive 23 on the tabs 22. Adhesive coatings of this type are now used on many types of bags to permit heat sealing of the bag mouths to effect a closure. In the case of the bag shown in Fig. 9, the adhesive area 24 may be activated after filling the bag to provide a closure and if it is not desired to fold over the top portion of the mouth to conceal the tab elements 22, these tab elements may be cut or otherwise severed from the top portion of the bag.

Fig. 10 discloses another form of the invention applied to a flat or envelope type bag and in this case opposed side panels 31 may be provided with tab elements 32 which extend upwardly from the mouth of the bag rather than outwardly from the side panels as in other forms of the invention. Fig. 10 illustrates the exterior surfaces of the tabs 32 as being provided with a coating of adhesive material indicated by the numeral 33 to facilitate securing together of the tab elements 32 of adjacent bags to form a chain or series.

Since the bags are formed by cutting individual lengths from a tube, the material used to form the tabs 32 will be removed from the bottom portion of the next adjacent bag length. When a conventional bottom seal indicated by numeral 34 is formed by folding over the bottom end portions of the bag and sealing them to the side panel, this will provide a cut-out portion indicated by the numeral 35.

One advantage of the construction shown in Fig. 10 is the ease with which the individual bags may be connected into a series or chain. It is only necessary to form a stack of a plurality of bags with their tab elements 32 in contact with each other and to heat the adhesive areas 33 to their activation temperature by heating through the stack, in a manner similar to block-sealing, to adhere the plurality of tab elements 32 together.

It may be seen that the present invention provides a bag construction in which elements are formed to extend outwardly from the bag and

permit securing the bag to another bag or bags to facilitate the use of such bags for packaging. The elements may be formed from portions of present conventional bag designs without affecting the use of such bags and without requiring appreciable deviation from present commercial bag making machinery. Such bags may also be readily provided with means to improve their use, such as the formation of improved closures, and the like.

The bags may be connected together in a variety of ways to permit their advancement in the desired direction as well as with the desired spacing. These factors may be determined according to the dictates of the filling mechanism, the commodity to be packaged, the type of closure, etc.

It will be understood that the foregoing description of preferred embodiments of the invention is for the purpose of explanation and illustration and numerous variations and modifications other than those which have been described may be made without departing from the spirit of the invention.

What I claim is:

1. A plurality of bags, each of which includes side panels and connecting edge walls and tab elements struck from said edge walls and extending outwardly from a side panel of each bag into overlapping relation with edge walls of adjacent bags and detachably secured thereto.

2. A plurality of bags, each including opposed side wall portions and tab elements integral with each of said side wall portions and extending in juxtaposed relation with tab elements of adjacent bags, said tab elements being detachably adhered together.

3. A plurality of bags, each including opposed side panels with connecting edge walls and a tab element struck from each of said edge walls and extending outwardly from a side panel of each bag, said tab elements of each bag being detachably secured to tab elements of adjacent bags.

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