Oct. 3, 1944. L. BARNETT 2,359,292

INFUSION PACKAGE WITH HANDLES

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Fig. 1.

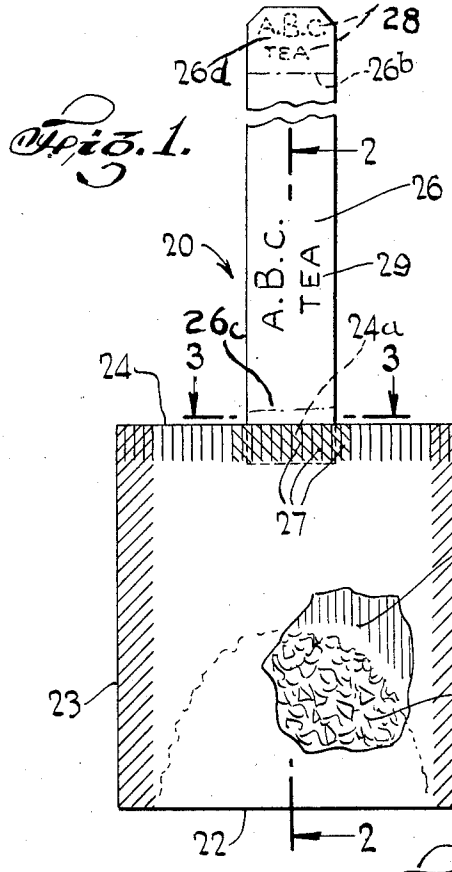


Fig. 2.

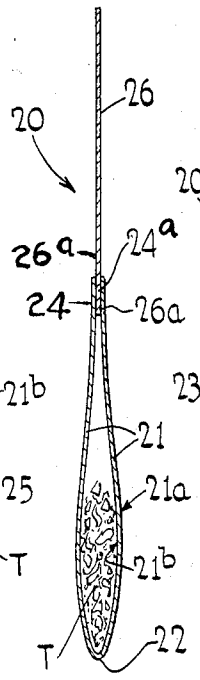


Fig. 3.

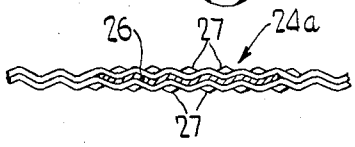


Fig. 4.

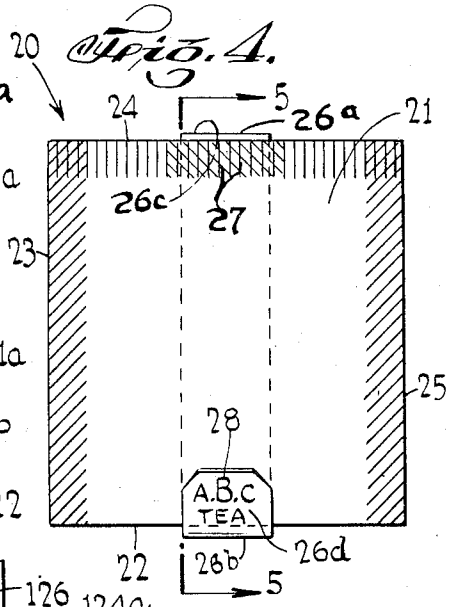


Fig. 6.

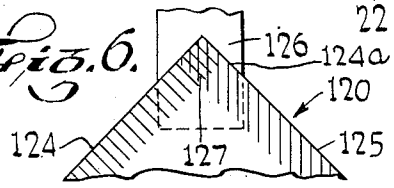


Fig. 7.

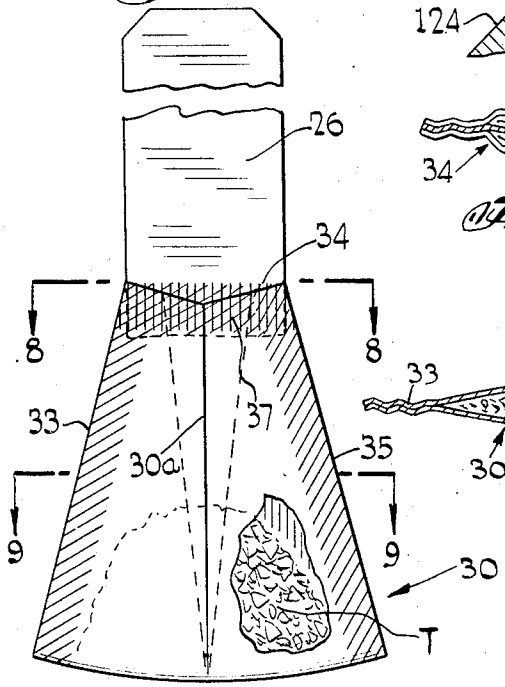


Fig. 8.



Fig. 9.

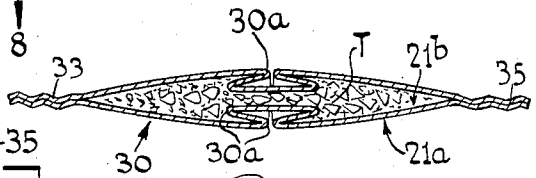
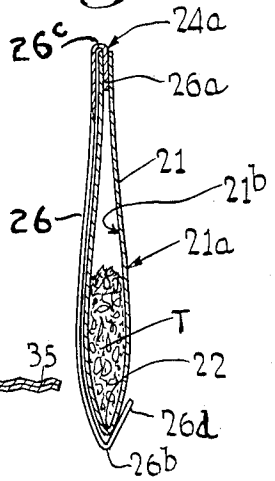


Fig. 5.



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Fig. 10.

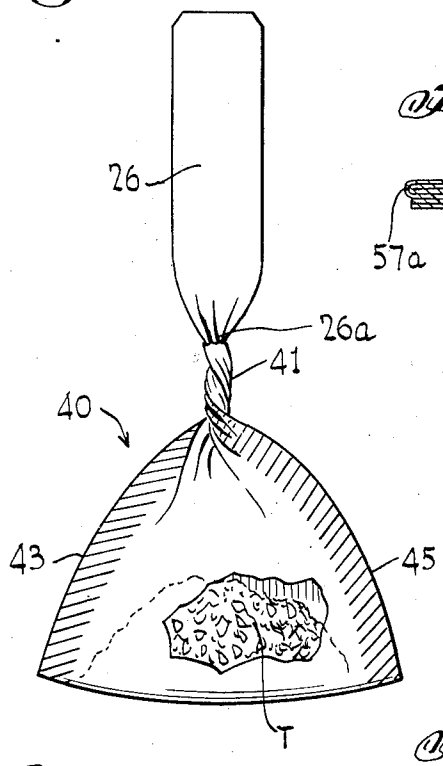


Fig. 15.

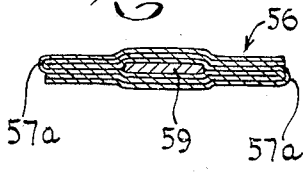


Fig. 14.

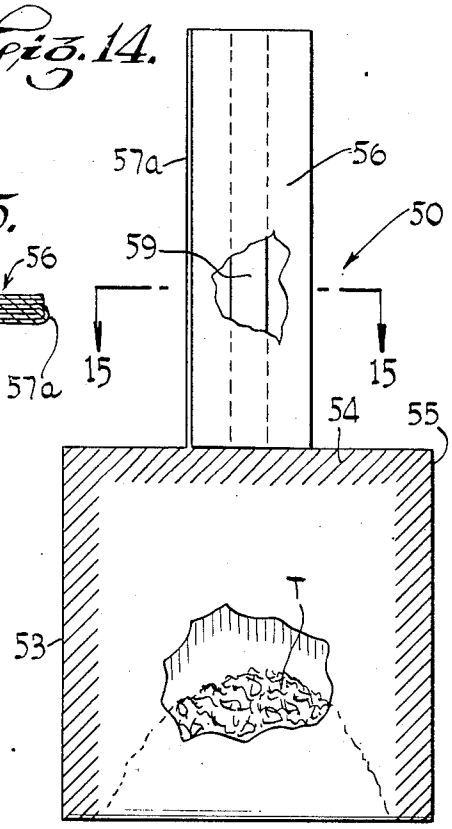


Fig. 11.

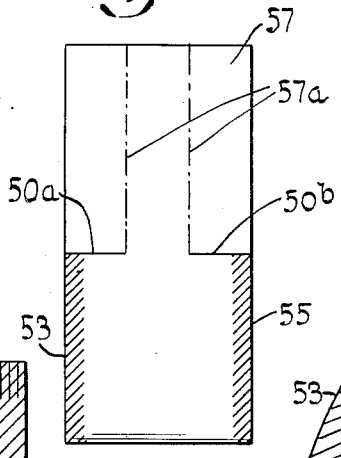


Fig. 12.

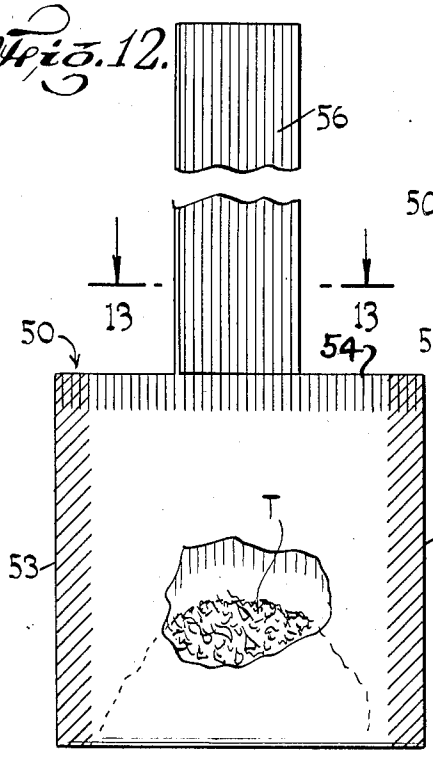


Fig. 16.

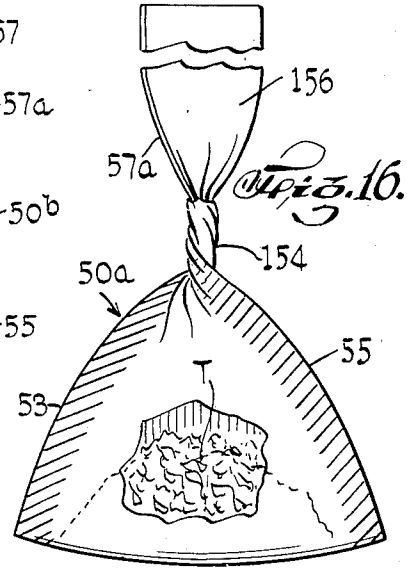


Fig. 13.



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UNITED STATES PATENT OFFICE

2,359,292

INFUSION PACKAGE WITH HANDLE

Louis Barnett, Brooklyn, N. Y., assignor to National Urn Bag Company, Inc., a corporation of New York

Application July 9, 1942, Serial No. 450,299

3 Claims. (Cl. 99—77.1)

This invention relates to the manufacture of filled containers or bags, and more particularly is directed to infusion packages, such as tea-balls with handles and like articles of manufacture.

Among the objects of the invention are to generally improve the construction of filled containers or bags in the form of infusion packages with handles as inexpensive articles of manufacture, which shall comprise few and simple parts, which shall be easy and cheap to manufacture, which shall be capable of quantity production on automatic super high-speed packaging machines, which shall have pressure heat sealed joint seams forming an improved means for retaining or reinforcing the connection of the handle with the bag portion of the package, and which shall be practical and efficient to a high degree in use.

Other objects of the invention will in part be obvious and in part hereinafter pointed out. The invention accordingly consists of features of constructions, combinations of elements, arrangements of parts which will be exemplified in the constructions hereinafter described and of which the scope of the application will be indicated in the following claims.

In the accompanying drawings in which are shown various possible illustrative embodiments of this invention.

Fig. 1 is a plan view of a square shaped tea-ball with heat sealed seam joint and handle attached constructed to embody the invention.

Figs. 2 and 3 are cross sectional views taken on lines 2—2 and 3—3 in Fig. 1, Fig. 3 being enlarged.

Fig. 4 is a plane view of the improved tea-ball shown in Fig. 1 with the handle folded about and releasably retained to package in form for packing and shipping.

Fig. 5 is a cross sectional view taken on lines 5—5 in Fig. 4.

Fig. 6 is a fragmentary plan view similar to Fig. 1 showing the handle attached to one corner of the package bag.

Fig. 7 is a plan view of a pouch shaped tea-ball with heat sealed seam joints folded bag portions and handle attached constructed to embody the invention.

Figs. 8 and 9 are cross sectional views taken on lines 8—8 and 9—9 in Fig. 7.

Fig. 10 is a plan view of another form of pouch-shaped tea ball form with heat sealed seam joints, gathered or twisted bag portions and a handle attached at said portions constructed to embody the invention.

Fig. 11 is a plan view of another form tea-ball bag having an integral handle and shown in partial manufactured state construction embodying the invention.

Fig. 12 is a plan view of the improved square shaped tea-ball with the integral handle completed from the bag shown in Fig. 11.

Fig. 13 is a cross sectional view taken on lines 13—13 in Fig. 12.

Figs. 14 and 15 are views like Figs. 12 and 13, respectively, except that the former show an additional reinforcement in the handle construction.

Fig. 16 is another pouch shape tea-ball formed with an integral handle from the partially manufactured construction shown in Fig. 11.

Referring to the drawings, 20 denotes one improved construction of a filled infusion package in the form of a square-shaped tea-ball manufactured to embody the invention. As seen from Figs. 1, 2 and 3, the tea-ball 20 may comprise a bag portion made of a strip of filter sheet material 21 folded over on itself to provide a bottom fold edge 22 forming two superimposed layers, that is, overlying portions providing the flattened sides of tea-ball 20 which are secured along the marginal areas on the remaining three edge portions at border joint seams or flanges 23, 24 and 25 to completely seal the tea-ball bag thus formed, said tea-ball bag being partially filled with an essence containing product T, such as tea, which forms the contents thereof.

The strip of sheet material 21 may be supplied from a suitable source in the form of a web of the required width (not shown) in the well understood manner, a sufficient length of said web being cut and folded to form the tea-ball bag. Or, precut strips of sheet material 21 of proper shape and length may form such supply source if desired. Sheet material 21 is of foraminous construction, as for example, filter paper, perforated parchment paper or Cellophane, cotton gauze and the like. That used in the practice of the invention here described may comprise a filter paper base layer 21*a* coated on one side with a thermosetting "partially fused" plastic lamina 21*b* of the character described in the application of Theodore F. Menzel, Serial No. 335,694, filed May 17, 1940, or of other suitable filter sheet base layer coated with a thermosetting plastic lamina for forming the heat sealed border joint seams of flanges 24 at the top, and similar spaced flanges 23 and 25 on op-

posite sides in the manner hereinafter more fully described.

A suitable filter paper sheet for forming base layer 21*a* may be made of a vegetable fibrous pulp stock, said layer 21*a* with thermosetting coating or lamina 21*b* being such that when made into the tea-ball bag has sufficient wet strength to withstand immersion in boiling water without damage or disintegration and without undue loss of tensile strength. The filtering sheet material 21 comprising the layer 21*a* and coating 21*b* when forming the tea-ball bags must be such as to permit ready infusion, that is, passage therethrough of the water of immersion for brewing and straining the filling or tea contents T, said layer 21*a*, coating 21*b* and flanges 23, 24 and 25 being of such composition that they are non-toxic, insoluble in hot boiling water, and impart no odor or taste even to the slightest degree to the brew.

It has been found in practice that a 6½ pound fibrous pulp stock sheet of approximately .001 inch thick of high wet tensile strength forms a practical filter paper layer 21*a* for the purposes described therein. On such layer 21*a* a finely powdered copolymer of vinyl chloride and vinyl acetate may be uniformly sprinkled or sprayed, "partially fused" by heat to 60° C. and pressure rolled thereon for providing a satisfactory, pervious, dry and extremely thin coating or lamina 21*b* which does not materially affect the filtering capacity of the layer 21*a*. Approximately three ounces of such vinyl powder for each pound of said layer 21*a* will form said coating or lamina 21*b* of normally less than .0005 inch thick.

Sheet material 21 after taken from a supply source is cut to the required size, made into the tea-ball bags and filled with the contents T, the tea-ball bags each having the coating 21*b* of the sheet material 21 positioned on the interior surfaces thereof so that the border edge joint seams or flanges 23, 24 and 25 are sealed on placing the coating portion thereof in face to face relation and applying pressure and heat to a fusion temperature by suitable clamping means of any well known construction. With the coating or lamina 21*b* formed of the "partially fused" vinyl powder permanent sealing fusion will take place when pressure and heat of approximately 130° C. is applied.

In the manufacturing of infusion packages for tea-balls and the like, it has heretofore been found desirable to include as part of the package some form of handle to manipulate the tea-ball during the brewing operation which may be carried out in a cup, and also to provide a tag which bears a legend such as the name or trademark of the manufacturer, grade of tea, etc. Such handles are most frequently provided by a string or stitched thread attached to the tea-ball bag, the free end of the string handle being terminated by the tag. The provision of such string handles and tags in the construction of such complete tea-balls not only increases the cost of manufacturing by employing various additional materials, but also complicates the production process by requiring additional steps and when made on high speed automatic machines necessitates the use of expensive apparatus.

To simplify the manufacture and make available simpler, less expensive and super high-speed machines for the production of tea-balls with handles having means for carrying legends, the tea-ball 20, made as above described and shown in Figs. 1 to 4 inclusive, with the heat sealed joint seams or flanges 23, 24 and 25 has one of said flanges, as for example, top flanges 24 provided preferably at its midportion, with an attachment or junction 24*a* with one end portion 26*a* of a strip handle 26.

Said handle 26 may be made of any suitable sheet material which is of such composition that it is insoluble in boiling water, and that will impart no toxic, odor or taste even to the slightest degree to the infusion. Most commercially available so-called "parchment" papers have been found practicable for making handles 26.

In order to assemble the handle 26 to the filled bag portion of the tea-ball 20, the strip of paper forming the handle 26 has the end portion 26*a* thereof inserted between mid-portions of the top edge border of the flat side of the bag forming the flange 24 before the latter is pressure heat-sealed, the width of said strip end 26*a* extending only partially the length of the flange 24 and being centrally located to outwardly extend from edge seam joint or flange 24 as shown in Figs. 1 and 2. The handle 26 thus normally lies in a plane extending through the junction closure of flange 24 and through the contents T as shown in Fig. 2.

When the bag portion of tea-ball 20 is made of the filter paper base layer 21*a* having the porous coating or thin lamina 21*b* as above described, on permanently heat sealing the seam joint at the top flange 24 with the handle end 26*a* interposed, said lamina 21*b* has sufficient body to firmly adhere to the opposite side of said handle end 26*a* forming the junction 24*a* and anchoring the handle 26 to the bag portion of the tea-ball 20 at the same time as providing a tight closure along the entire length of the seam joint of flange 24.

Preferably the portion of the flange 24 at the junction 24*a* between which the handle end 26*a* is embedded has a cross-corrugation 27 construction thereat so as to increase the anchoring effect of the structure where the handle 26 is attached to said flange 24. This cross corrugation 27 thus provides a reinforcement to said anchoring attachment 24*a* by displacing the fused heat sealed sheet material out of a normally aligning plane of the flange 24 as seen from Figs. 1, 3 and 7.

In order to eliminate accidental damage or tearing of the handle 26 from the tea-ball 20 when packing for shipment or removal for use, and to facilitate compact packaging of said tea-balls, the handle 26 may be made longer than the distance across the package from the handle junction 24*a* to the opposite edge fold 22, a cross fold 26*b* may be provided on the handle end 26*a* just beyond the flange 24 and another cross fold 26*c* provided adjacent the elongated free end 26*d* of said handle 26, so that said fold 26*c* may be positioned to releasably embrace the fold edge 22 of the tea-ball bag as shown in Figs. 4 and 5, a dot and dash line being shown in Fig. 1 to indicate the position for making fold 26*b* and 26*c*.

The above described construction and arrangement of folded handle avoids the objection usually found with dangling handles on tea-balls and makes up a neater looking package with spaced areas for imprinting on opposite sides of the handle 26, a legend or marking 28, near the handle end 26*d* and a legend 29 on the midportion of the handle 26. Thus legends 28 or 29 are visible when the tea-ball 20 is seen from either flat side thereof, as is clear from Figs. 1 and 4.

In Fig. 6 is shown the construction of a fragmentary portion of a tea-ball 120 which may be like tea-ball 20 described above, except that the handle 126 is attached to the bag portion of the tea-ball 120 by anchoring 124a at a corner of flanges 124 and 125. The ordinary corrugation provided on the structure of the flanges 124 and 125 would normally form a cross-corrugation area 127 and thereby increase the anchorage thereat.

In Figs. 7, 8 and 9 there is shown a pouch-shaped tea-ball 30 having the bag portion thereof formed with folds 30a in the flat side thereof and extending through heat sealed seam joint top flanges 34, the heat sealed side flanges 33 and 35 being formed in the manner described for tea-ball 20 above and as shown in Figs. 7 and 9.

As shown in Fig. 8, the end 26a for handle 26 is heat sealed between the portion of folds 30a at flange 34, the width of the handle 26 preferably being made the length of the folded flange 34 so that the intersecting cross corrugation 37 formed on flanges 33, 34 and 35 provide additional anchorage structure for the heat sealed attachment of the handle end 26a at the flange 34.

In Fig. 10 another form of pouch shaped tea-ball construction embodying the invention is shown. Here the bag portion of tea ball 40 may be made in the same manner as that described above for tea-ball 20 with side seam joint flanges 43 and 45. The open ended bag portion of tea-ball 40 when filled has the handle end 26a inserted into the open end of the bag portion and the latter gathered or twisted and pressure heat sealed for forming a permanent closure 41 as shown and thereby also providing a reinforced anchorage for the handle 26 to the bag portion of the tea-ball 40.

In Figs. 11, 12, 13 and 14 and 15 there is shown another square shaped tea ball 50 construction made with an integral handle 56 embodying the invention. The tea ball 50 is preferably made from a folded web of filter sheet material having thin coating of a porous lamina like tea-ball 20 except that filter sheet material is extended beyond the normal length of the bag portion thereof. Said folded web as seen from Fig. 11 is partially severed as at 50a and 50b just above the top end of the flanges 53 and 55, respectively. The uncut portion 57 is folded on opposite sides along the parallelly spaced fold lines indicated at 57a to provide when folded as shown in Figs. 12 and 13 the triple ply handle 56. Said multiply handle 56 may be pressure heat sealed along its entire length together with the junction thereof with the bag portion of the tea-ball 50 heat sealed to provide the top closure 54 for the said tea-ball 50.

Where it is desired to use the tea-ball 50 form of construction to include a stirring means, a stiff strip 59 of suitable material may be inserted to extend lengthwise the center of the handle 56 as shown in Figs. 14 and 15.

If instead of making a square shaped bag portion as on tea-ball 50, it is desired to produce a pouch shaped bag portion, the same construction is followed as shown in Fig. 11 and described above, then the top of the filled bag is gathered or twisted as at 154, pressure heat sealed to provide a permanent closure and reinforcement of the junction of the handle 156 to the bag portion of the tea-ball 50a as shown in Fig. 15.

It is to be understood that, if desired each of the tea-balls 120, 30, 40, 50 and 50a above described may be provided with handle folds and legends constructed and arranged in the same manner as the folds 26b, 26c and legends 28, 29 on the handle 26 of the tea-balls 20 as shown in Figs. 1, 4 and 5 so as to be non-dangling.

It will thus be seen that there is provided an infusion package whereby the several objects of this invention are achieved and which are well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiments above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A package of the character described formed of overlying sheets of filter material secured together by heat sealing in face to face relation along edge seam joints to form a bag for enclosing an infusion product, a strip-handle having an end extending in between said sheets along portion of said joints and anchored by permanent fusion of the heat sealing closure thereat, said handle being of greater length than the width of the said package and including a first cross-fold provided adjacent the anchored end thereof for positioning the handle against a side of the bag, and a second cross-fold spaced from said first fold for positioning an end portion of the handle beyond the edge seam joint opposite said handle anchoring closure to releasably embrace said edge joint and retain the handle in said first folded position.

2. The package as defined in claim 1 in which the bag thereof is normally square shaped, and said junction of the handle with said permanent closure comprising structural means to provide a pouch-like shape of the bag for the finished package.

3. The package as defined in claim 1 in which said handle anchoring heat sealed seam joint closure includes a reinforcement therefor comprising a displacement of the fused heat sealed sheet material out of a normally aligning plane.

LOUIS BARNETT.