INFUSION PACKAGE WITH NON-TANGLING STRING HANDLE

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Application November 6, 1945, Serial No. 626,994

14 Claims. (Cl. 99—77.1)

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

Among the objects of the invention are the general improvement of filled containers or bags in the form of infusion packages with non-tangling arranged string handles and tags as inexpensive articles of manufacture, which shall comprise few and simple parts that are easy and cheap to manufacture, which shall be capable of quantity production on automatic high-speed packaging machines, which shall have pressure heat sealed joint seams formed with an improved means for retaining the tag temporarily to the bag portion of the package to eliminate tangling of the string handle and tag, which shall provide a neat appearing 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, combination of elements, arrangement of parts which will be exemplified in the constructions hereinafter described and of which the scope of application will be indicated in the following claims.

In the accompanying drawings in which there are various possible illustrated embodiments of the invention:

Figs. 1 and 2 are plan and side elevational views of a square shaped tea ball with heat sealed seam joints and string handle terminated by a tag attached to eliminate tangling before use and constructed to embody the invention.

Fig. 3 is an enlarged fragmentary cross-sectional view taken through the temporary connection of the tag with the tea-ball bag taken on lines 3—3 in Fig. 1.

Fig. 4 is a plan view of an improved tea ball similar to Fig. 1 but showing a modified form of the invention in both the construction of the tag and the temporary attachment thereof to the bag portion.

Fig. 5 is a cross-sectional view taken on line 5—5 in Fig. 4 to show the construction of the tag.

Fig. 6 is a view showing blank and method of construction the tag terminating the string handle and in component parts of the tag.

Figs. 7 and 8 are plan and side elevational views of another form of the improved tea ball with the improved non-tangling string construction in which the tag is temporarily secured by folding over the crimping the tag to the bag.

Figs. 9 and 10 are fragmentary cross-sectional views taken on the tag temporary attachment taken on lines 9—9 and 10—10 in Fig. 7.

Fig. 11 is a plan view of still another modification of the invention showing a tea ball made with a temporarily attached tag to the body of the package, and

2. Referring to the drawings 20 denotes an 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 may comprise a package portion made of a filter 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 the tea ball 20 which are secured along the marginal areas on the remaining three edge portions at the border closure joint seams or flanges 23, 24 and 25 to completely seal the tea ball bag, thus formed, said tea ball package 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 web (not shown) in the well understood manner, a sufficient length of said web being cut and folded to form the tea ball bag. Or, pre-cut strips of the said material 21 of proper shape and length may form such supply source if desired. The sheet material 21 is preferably foraminous construction, 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 of a filter paper piece layer 21a coated on one side with a thermo-setting “partially fused” plastic lamina 21b of the character described in Manzel Patent No. 2,308,400 granted December 29, 1942, or of other suitable filter sheet piece material coated with a thermo-setting plastic lamina for forming heat sealed border joint seams or flanges 24 at the top and similar spaced flanges 23 and 25 on opposite sides in the manner hereinafter more fully described.

A suitable filter paper sheet for forming base layer 21a may be made of a vegetable fibrous pulp stock, said layer 21a with thermo-setting coating or lamina 21b 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 filter sheet material 21 comprising the layer 21a and coating or lamina 21b 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 21a, coating 21b and flanges 23, 24 and 25 being of such composition that they are non-toxic, insoluble in hot boiling water, and
It has been found in practice that a 6% pound fiber stock sheet of approximately .001 inch thick of high wet tensile strength forms a practical filter paper layer 21a for the purposes described therein. On such layer 21a 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, porous, dry and extremely thin coating or lamina 21b which does not materially affect the filtering capacity of the layer 21a. Approximately three ounces of such vinyl powder for each pound of said layer 21a will form said coating or lamina 21b of normally less than .0005 inch thick.

Sheet material 21 after taken from a source may be cut to the required size, made into tea ball bags and filled with the contents T, the tea ball having each having the coating 21b of the said sheet material 21 positioned on the interior surface thereof so that the border edge seams or flanges 23, 24, 25 and 26 are sealed on placing the coating portion thereof in face to face relation and applying pressure and heat to a fusion temperature suitable for suitably clamping means of any well known construction. With a coating or lamina 21b formed of the "partially fused" vinyl powder, permanently sealing fusion will take place when the pressure and heat of approximately 150°C is applied.

In manufacturing of infusion packages of tea balls and the like, it has heretofore often been found desirable to include some form of handle to manipulate the tea ball during the brewing operation which is best carried on in a cup, and also to provide a tag which bears a legend or trade mark of the manufacturer, grade of tea, etc. Such handles are most frequently provided by a string handle 26 attached to the tea ball package, the free end of said string handle 26 being terminated by a tag 27. One end 26a of the string handle 26a may be anchored in any suitable manner to the exterior side of the package, as for example, at a mid-portion of the top closure joint seam 24 by a wire staple 28. The other end of said string handle 26 may be anchored to the tag 27 by a similar staple 29 as shown in Figs. 1, 2 and 3.

In order to eliminate dangling of the string handle 26 and tag 27 which sometimes results in accidental tearing of the package when cartoning or handling and to provide a neat and attractive appearance the tea ball 20, delivered to the user, the edge portion 26a of the tea ball 20 beyond the top closure heat sealed joint 24 is left unsealed for a sufficient distance to permit the insertion of an infolded narrow edge border 27c of the tag 27. Said edge border 27c may be temporarily secured in place by spot heat sealing at spaced points 30 so that the string handle 26 is held in a looped position against the side of the package and the tag 27 removable retained to the package in an attractively neat manner for delivery to the user thus eliminating dangling as is shown in Figs. 1, 2 and 3.

In making tea balls on super high-speed tea ball manufacturing apparatus such as shown and described in applicant's co-pending application Ser. No. 460,389 filed, July 9, 1942, the invention may be practised by providing an accessory device for supplying and applying string handle 26, staples 28 and 29, and tags 27 so that the tag infolded edge border 27c is inserted in an unsealed top edge portion 10a of each tea ball 20 during the manufacture thereof, and spaced spot heat sealing points 30 applied after which the finished tea ball 20 as shown in Figs. 1 and 2 may be conveniently handled for packaging and delivered to the user in non-tangling form. The user by simply grasping the tag 27 may readily pull the latter from its temporary attachment by spot points 30 for leaving the string handle 25 free to serve as a stirring and brew manipulating means in the well understood manner (not shown).

In Figs. 4, 5 and 6 a modified construction of the invention is shown. The tag 47 on tea ball 40 may be made of sheet material coated on one side with a heat sealing lamina which may be similar to lamina 21b of the tea ball 20 described above. Said tag 47 may be made from a blank B shown in Fig. 6 provided with a fold line F and an integral extension flange 47c. By folding the blank B over on fold line F with the one end 46b of a string handle 46 therewith and heat sealing the lamina surface in face to face relation, the tag 47 attached to string handle 46 is formed, as shown in Figs. 4 and 5. The tag extension flange 47c may be inserted between the unsealed portion 46a of the package 40 beyond top closure joint seam 44 and spot heat sealed at points 56 as indicated in Fig. 4, in a similar manner to that described for tea ball 20 and shown in Figs. 1 and 3. The other end of the string handle 46a may be anchored by a staple 48 to said top closure joint seam 44. Thus the tag 47 is temporarily retained in position against package 40 with the string handle 46 in a non-tangling position against the flat side of the tea ball 40.

Another form of construction embodying the invention is shown in the Figs. 7 to 10, inclusive.

Here the package of tea balls 30 may be constructed like that described above for tea balls 20 and 40 shown in Figs. 1 and 4, except that tag 67 is made with an infolded flange 67a which is clamped over the top border edges 68a of the package and retains the tag 67 temporarily in position by space clamping means 76 instead of spot heat sealing means used in the construction of tea balls 20 and 40.

String handle 65, may have at one end 69a thereof anchored to the top closure heat sealed joint seam 64 by staple 68, the other end 65b of said string handle 65 being permanently attached to the tag 67 in the manner described above for tag 47 as shown in Figs. 4 and 5. Tag 65 is thus detachably mounted on the package and retains the string handle 65 in non-tangling position. By simply pulling the tag 67 from the package the tea ball 60 is ready for use in the brewing manipulation.

Still another modification of the invention is shown in Figs. 11 and 12. Here, tea ball 80 has one end 85a of the string handle 86 anchored to the top closure heat sealed joint seam 84 by staple 88. The other string handle end 86b is permanently attached to the tag 87 in any suitable manner and as here shown by being adhesively secured between overlying pieces of sheet material forming the tag 87 as shown in Fig. 12. The upper edge border 87a of the tag 87 may be punched with a section 87b which stretches sheet material border and tag portions from their nominal planes to the form of an integral rivet structure which forms a temporary fastener for the tag 87 to the package. Said punched section 87b may be so formed as to extend through
the package adjacent said top joint seam 24 as at 87, at a spaced distance from the anchoring staple 88, so that by a pull action exerted on the tag 87 it is released and permits the use of the string handle 86 for suspending the tea ball 89 in brewing.

It should be noted that one feature of constructing the tea balls 20, 40, 60 or 80, is to provide the top closure joint seam 24 of the packages positioned inwardly of the edge borders 20a, preferably at least half the distance of the width of each joint seam 24. This improvement has several advantages, the principal one being that in heat sealing said top joint seams 24, the flow, during fusion of the lamina 21b thereat, is retained within the confines of the inner surfaces of the sheet material portion forming each edge border 20a. Thus in super high speed manufacturing of the tea balls the heated clamping means (not shown) which permanently heat seal the top joint seams 24 are kept free from the heat sealing material, that is, molten lamina 21b which would otherwise flow out to foul said clamping means if the heat sealed joint 24 were positioned to extend to the very edge or closer than about the distance half the width of each joint seam 24.

Another reason for locating the top closure joint seam 24 inwardly from an unsealed edge border 20a, as shown in the drawing and described above, is to provide mounting supports for the tags 27, 47, 67 and 87 beyond the top closure joint seams 24 so that when said tags are pulled to detach them from their temporary fastener means the top closure joint seams 24 remains intact even if part of the edge borders 20a of the tea balls are torn away in said pulling operations.

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 completely enclosing an infusion product in a bag formed with a top closure seam having a heat-sealing joint material, an unsealed edge border portion of unbroken length extending from side edge to side edge of said bag and extending beyond said top closure seam a sufficient distance so constructed and arranged to retain a flow of said heat-sealing joint material from passing beyond said border portion during fusion of said joint material when forming said top closure seam, said unsealed edge border portion being free from said heat sealing joint material and serving as means for receiving and temporarily retaining portions of a detachable tag.

2. In a heat sealed package, a top closure seam formed with a heat sealed joint material having a border portion of unbroken length extending from side edge to side edge of said package and beyond said closure seam to the package top edge for retaining molten joint material wholly within said border portion during heat sealing of said closure seam, said border portion being of sufficient width to serve as an anchorage for a detachable tag leaving the top closure seam intact when the border portion is damaged accidentally on removal of the tag therefrom.

3. A flattened package formed with a top closure heat sealed joint seam, said joint seam having unsealed edge borders of unbroken length extending from side edge to side edge of the package and beyond said top closure joint seam to the package top edge for retaining molten joint sealing material wholly within said edge borders, a string handle having one end secured to said package at said top closure joint seam and short of said edge borders, a detached tag secured to the other end of said string handle, and means for temporarily securing a portion of the tag to said edge borders at a spaced distance from the anchored string and for loops the string handle to eliminate tangling of the string handle and tag while said means is effective in positioning the tag to lay against the flat side of the package.

4. A package of the character described formed with a top closure heat sealed joint seam, said joint package having an unsealed edge border of unbroken length extending from side edge to side edge of the package and beyond said top closure joint seam, a string handle having one end secured to said package at said top closure joint seam, a tag secured to the other end of said string handle, and means for temporarily securing a portion of the tag to said edge borders at a spaced distance from the anchored string handle and for loops the string handle to eliminate tangling of the string handle and tag while said means is effective, said temporary securing means including spot heat sealing of said tag to said edge border.

5. A package formed with a top closure heat sealed joint package having an unsealed edge border of unbroken length extending from side edge to side edge of the package and beyond said top closure joint seam, a string handle having one end secured to said package at said top closure joint seam, a tag secured to the other end of said string handle, and means for temporarily securing a portion of the tag to said edge borders at a spaced distance from the anchored string handle end for loops the string handle and tag while said means is effective, said temporary securing means including a cramped attachment extending over said edge border for demountably retaining the tag to said edge border.

6. A package of the character described formed with a top closure heat sealed joint seam, said joint package having an unsealed edge border of unbroken length extending from side edge to side edge of the package and beyond said top closure joint seam, a string handle having one end secured to said package at said top closure joint seam, a tag secured to the other end of said string handle, and means for temporarily securing a portion of the tag to said edge borders at a spaced distance from the anchored string handle end for loops the string handle and tag while said means is effective, said temporary securing means including a cramped attachment extending over said edge border for demountably retaining the tag to said edge border.

7. A package as defined in claim 3, in which a portion of said tag is inserted between said unsealed edge borders and spot heat sealed to form said temporary securing means for demountably retaining the tag thereon.

8. A package as defined in claim 3, in which said tag is heat sealed to the end of the string handle and is provided with an extension flange.
for engaging and spot heat sealing to said edge borders to form said temporary securing means for demountably retaining the tag thereto.

9. A flattened package formed with a top closure heat sealed joint seam, said joint seam having unsealed edge borders of unbroken length extending from side edge to side edge of the package beyond said top closure joint seam, a string handle having one end anchored to said package at said top closure joint seam, a tag secured to the other end of said string handle, means for temporarily securing a portion of the tag to said edge borders at a spaced distance from said anchored string handle end for looping the string handle to eliminate tangling of the string handle and tag while said means is effective and to position the tag to lay against a flat side of the package, said means including a U-shaped flange provided on the tag for engaging over said edge borders, and cramped fastener means impressed on said tag flange to form temporary securing means for demountably retaining the tag to said edge borders.

10. A package as defined in claim 9 in which an integral rivet structure is formed therefrom which extends through and engages the edge borders to form said temporary securing means for demountably retaining the tag to said edge border.

11. An infusion package formed with flat sides and top closure heat sealed joint seam, a string handle for the package, permanent anchoring means for securing one end of said string handle to said package at said top closure joint, a tag secured to terminate the other end of said string handle, a temporary formed fastener means spaced from said anchoring means for demountably attaching the tag directly to the package adjacent said closure seam joint with the tag lying flat against a flat side of the package and the string handle in a non-tangling position, said fastening means permitting ready detachment of the tag from the package for using the string handle as suspension means in brewing manipulation.

12. A flattened package formed with a top closure heat sealed joint seam, said joint package having unsealed edge borders of unbroken length extending from side edge to side edge of the package beyond said top closure joint seam, a string handle for the package, permanent anchoring means for securing one end of said string handle to said package at said top closure joint seam, a tag secured to the other end of said string handle, a temporary formed fastening means spaced from said anchoring means for detachably securing the tag and looping the string handle to eliminate tangling of the string handle and tag while said fastening means is effective to position the tag to lay against a flat side of the package, said temporary fastening means retaining the tag to said edge borders beyond end closure heat sealed joint seam.

13. An infusion package comprising a flattened bag having a heat sealed joint seam serving as a top closure formed inwardly of the edge border portion of said bag, a string handle attached at one end to said top closure seam, a tag secured to the free end of the string handle, and means temporarily interconnecting the tag to said bag edge border portion beyond the top closure for positioning the tag to extend across said closure seam with said tag laying against a flat side of the bag.

14. An infusion package as defined in claim 13 in which said means temporarily interconnecting the tag to said bag edge border portion is formed of a distorted structural interconnection of the tag and said edge border portion beyond said closure seam with respect to a normal plane of the sheet of the bag and tag.

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