FOOD CASING AND METHOD OF MAKING IT

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ABSTRACT

A piece of fibrous, membranous, paperlike material is folded-over into a doubled, elongated pattern piece, and a central portion of its bottom end is then given a further fold to make it four ply. The bottom end is then cut into a convexly rounded shape with a four ply central portion being retained. The pattern piece is formed into a food-receiving casing by being stitched continuously from one side corner therealong, across and above its open top end to form a thread hanger loop, along the opposite side, and in a rounded path along the bottom edge of the material and back to the starting point. The stitching is a cross-thread, edge-overlapping type and is effected at the rounded bottom end in such a manner as to avoid splitting or tearing the material. The four-ply thickness of the central bottom area represents the portion of the rounded-off bottom edge which somewhat approaches a transverse line that is parallel to the fibers and at right angles to the longitudinal or vertical axis of the casing. The diameter of needle penetration for the rounded end is such as to assure that edges of the holes fit closely with the threads used in the stitching.

11 Claims, 9 Drawing Figures
FOOD CASING AND METHOD OF MAKING IT
This application is a continuation-in-part of our U.S. application Ser. No. 343,366 filed Mar. 21, 1973.

BACKGROUND OF THE INVENTION
1. Field of the Invention
This invention deals with an improved form of food casing and to procedure for making a casing which basically has a rounded closed end portion.

2. Description of the Prior Art
To obtain background as to the field of the invention, attention is called to the Hofmann U.S. Pat. No. 3,653,738 of Jan. 18, 1972 which points out that early practice has been to use hog bungs for encasing or packaging foods, such as ground meat products, and that the use of a paperlike casing as faced with an appetizing-appearing emulsion is now a practical alternative. Copending U.S. application No. 343,366 of Mar. 21, 1973 discloses that an inexpensive paperlike casing or sock may be provided which may be stuffed with food without requiring turning it inside out, which does not require a reinforcing cloth tape or binder, which will have sufficient strength to retain the food product without splitting or breaking and, at the same time, will present an appetizing appearance and which when filled can be easily sliced by the butcher or housewife.

The above-mentioned application indicates that the type of stitching and the construction and shape of the bottom end of the paperlike casing are important factors. In this connection, the use of a triangular shape to provide a stitched closing-off of the bottom end was indicated. Both from the standpoint of an appearance that is more naturally acceptable to the purchaser, and the possibility of a maximized content of ground food, meat or other product, there is a need for an artificial bung or paperlike casing which is formed from a pattern piece of membraneous material having a cross extending grain or fiber structure which will, for the first time, enable the use of a convexly rounded, sewed-off lower end portion.

SUMMARY OF THE INVENTION
It has thus been an object of the present invention to solve the problem presented in previous attempts to manufacture and use a paperlike casing which will take the place of a conventional bung and which will have a rounded, closed bottom end.

Another object has been to devise a procedure that will avoid difficulties previously encountered in endeavoring to stitch a rounded bottom end portion of a paperlike casing, and which will make possible a practical operation for producing a stitched closed-off lower end that will approach the strength of stitched longitudinal sides of the casing.

A further object of the invention has been to discover factors which have to be met in successfully producing a rounded stitched bottom closure end for a paperlike or membraneous, food-receiving casing or sock.

These and other objects of the invention will appear to those skilled in the art from the illustrated embodiments and the claims.

BRIEF DESCRIPTION OF THE DRAWINGS
In the drawings, FIG. 1 is a broken-away, partially fragmental, vertical view of a substantially rectangular paperlike pattern piece that has been doubled or fold-over in an edge-aligned relation, but with a slight, tab-like offset of one longitudinal side with respect to the other at the upper end thereof;

FIG. 1a is a vertical fragment on the scale of FIG. 1, illustrating the folding-over forming of a bottom end portion of the casing shown in FIG. 1;

FIG. 1b is a view similar to FIG. 1a, but showing a second step in forming the bottom end portion in which a further fold is made to provide a four- ply central portion;

FIG. 2 is a front side view on the scale of FIG. 1 showing a casing or sock that has been trimmed and stitched in accordance with the invention and employing the pattern piece of FIGS. 1 and 1a;

FIGS. 3 and 4 are greatly enlarged, somewhat diagrammatic, fragmental sections taken within the circular III of FIG. 2 and illustrating how thread stitching is formed along the casing wall. FIG. 3 shows the stitching as it appears from one side of the casing and FIG. 4 shows it from the standpoint of the opposite side, e.g., its back and front sides respectively.

FIG. 5 is a broken-away and partially sectioned elevation on the scale of FIG. 2, showing the casing filled or stuffed and rounded-out by a ground food product, such as Braunschweiger or gooseliver, and with its upper end portions tied or clamped together to close it off and retain the food product therein;

FIGS. 6 and 7 are enlarged fragmental horizontal sections illustrating how the seams are formed (FIG. 6) and how they may be laid substantially parallel (FIG. 7) with the casing wall after the casing has been stuffed or pressure-filled with a food product into a substantially symmetrical shape (FIG. 5);

DESCRIPTION OF THE PREFERRED EMBODIMENT
A piece of fibrous, paperlike or membraneous (non-woven) material of relatively thin thickness, and having its fibers extending crosswise rather than lengthwise thereof, is cut to provide a substantially rectangular, longitudinally elongated shape or pattern piece 8. The piece 8 is then, as shown in FIGS. 1, 1a, doubled-over and edge-aligned to provide it with an open, two thickness or layer from its upper edge 13a, along folded side 11, along open side 12, and along open lower edge portion 9. It is then folded or doubled again along the dot and dash line a' from bottom edge 9, to provide a four ply, closed-off, lower end portion 10 (see FIG. 1a). Then the bottom portion is cut or trimmed-off along dotted line a to provide a convexly rounded bottom edge 10a and a double flap portion 10b. This provides a preliminary shape from which a hollow casing 30 is to be formed (see FIG. 2). As indicated from FIGS. 1a and 2, twice doubled end portion 10b is cut or trimmed off along the line a to provide a fully rounded bottom edge portion 10a which has a centrally disposed, upwardly projecting, doubled pair of tabs 10b. Stitching A is shown as extending fully along the rounded convex edge 10a which includes the four ply or twice doubled thickness portion 10b.

An upper transverse end portion of the front half or thickness of the pattern piece 8 is shown of shorter, downwardly offset extent or length with respect to the back half or thickness. See downwardly offset front edge portion 13a of the front thickness (FIGS. 1 and 2) and topmost, slightly longer, back thickness or side as represented by its extension to upper edge 13. This pro-
vides an exposed top flap 14 extending from the back thickness or layer of the material that facilitates food product stuffing of a formed casing 30.

The four layer thickness portion 10b will be provided at least along the more transverse or horizontal central portion of the rounded line a to be formed that is substantially parallel with the fibers of the material and thus, that approaches about a 90° angular relation with respect to a vertical central axis of the pattern piece 8. The double folding-over may, however, be accomplished for the full extent of the proposed bottom edge 10a. In FIGS. 1a and 2, it has been shown for the purpose of illustration as extending along the more flat portions of the curve involved. It is essential only where the edge that is being stitched extends or advances in a substantially parallel or non-angular relation with respect to the fibers or grain of the paperlike material.

Stitching A is accomplished, as set forth in our co pending application, by employing at least three threads or strands 20, 21, 22, such as of cotton material of a suitable size, and of an optimum of about No. 24 gauge. It is of an edge-overlapping, binding, so-called overcast basket or blanket type. It is desirable to use all threads of the same gauge with two (21 and 22) of greater softness that serve as “chainoff” (cross, edge-overlapping threads) (see FIGS. 3 and 4), and with the other or material penetrating thread 20 of greater strength. For a given length of stitching, the threads 21 and 22 require a length of about one and one-half times the length of the thread 20. The stitching of the main thread 20 is through the material at right angles to its surface and advanced at right angles to the direction of the fibers thereof, fully along side edges 11 and 12. The thread 20 in its advance, however, approaches a substantially parallel relation with the fibers of the material along bottom edge portion between b and c (FIG. 2) that is represented by central area 10b.

The advancing loops on one side (front) of the thread 20 are shown of shorter length (FIG. 4) than the loops on the other side (back of FIG. 3). It will be further noted that the threads 21 and 22 do not extend through the material, and that the thread 21 extends angularly across the material to form inner loops that loop or extend through back side loops of the thread 20, and form outer loops that extend through or loop with outer edge loops of the thread 22. The thread 22 extends angularly crosswise along the front side of the material to extend through or loop at its inner reaches with front side, smaller loops of the main thread 20, and to at its outer reaches, loop through outer reach or edge loops of the thread 21. The thread 22 is shown having substantially equal size inner and outer loops of wider extent than substantially equal size inner and outer loops of the thread 21.

In first and unsuccessfully attempting to stitch about a rounded bottom edge, such as 10a, it was determined that it could not be accomplished without causing a splitting of the non-woven material, particularly at the major centralized area, as represented by the portion between b and c of FIG. 2. This is principally due to the fact that the stitching advances or runs substantially parallel to rather than crosswise or angularly with respect to the fibers of the material. This was the reason a triangular form of bottom end portion was provided for the sock shown and described in our above mentioned copending application.

Now, however, it has been discovered that two factors, if met, will enable a successful stitching of a rounded edge 10a, without danger of splitting or tearing the paperlike material during the sewing operation. Also importantly, it will enable a completed casing to, without bottom breakage, be pressurefilled or stuffed with food, and thereafter fully rounded-out with the food and employed as a hangable retainer sock during processing of the food product, as well as when storing or shipping the product.

The first factor that had to be met is a reinforcement of the central end portion that more closely approaches the transverse dimension of the pattern piece. This is accomplished by a doubling-over from the central area of the material to produce, as shown in FIG. 1a, a short length, four-layer thickness portion 10b to which the most critical portions of the end stitching are applied. A second important factor was the discovery of the necessity of using a sufficiently small needle for the stitching operation or in limiting its penetration in the material such as to avoid a diameter of hole after the needle has been withdrawn that is visibly larger than the diameter of the thread 20, in the sense of avoiding visible spacing between the outer diameter of the thread and the edges or eyes of the hole portions in the material. The needle used may be the smallest size that will receive the thread and permit its smooth advancement during the stitching operation. That is, it is essential to at least form the holes with a diameter that, when the needle is withdrawn, will substantially closely correspond to the outer diameter of the threads or to so form the holes that they (their edges) will have close engagement with or even a slight compression with the thread that extends therethrough when the stitching is accomplished. This takes into consideration the somewhat flexible “give” of the material when the needle introduces the thread therein.

Employing the above criteria, it is now practical to form stitching A along edges that, in their extension, lie or extend substantially or fully parallel to the direction of extension of the fiber content of the material, see the edge portion of 10a between points b and c of FIG. 2. Thus, stitching A can be effectively accomplished along a central, outwardly convex area of the bottom outline of the casing that is substantially parallel to the fibers, provided that the above two criteria are met.

It is indicated that the forming of stitching A along a convex edge may be effectively accomplished between two-ply material thicknesses or layers, even where the angular relation between a tangent to the curved portion and the central longitudinal axis of the casing is about 45° or more or is about 45° or less with respect to the direction of extension of the fibers of the material. It will be noted that the extension or direction of the stitching A along the side edges 11 and 12 approaches a maximum of about a 90° relation with respect to the cross direction of extension of the fibers and is substantially parallel to the central longitudinal axis of the casing. Upon both a double doubling-over in the sense of providing a four-ply thickness plus the utilization of the type of stitching and the type of hole construction outlined has been found to permit successful stitching, where the angle of advance defined with respect to the fibers approaches or reaches zero, as between points b and c of the edge 10a of FIG. 2. Although close fitting hole portions are essential for the substantially parallel portion at the bottom end of the
casing, it is important in providing a stronger stitched edge where the angular relation is of a value of less than about 45° between the curvature of the edge and the direction of the fibers, e.g., between points c and d of FIG. 2. As an optimum, the close fitting relation will be maintained along the entire extent of the stitching A.

The stitching A which is preferably of a machine type may be started at one corner or longitudinal end; for example, as represented by d of FIG. 2 and continued fully along the side edge 12, in an open braid loop forming relation across and above the top edge 13, and then down along the side edge 11, and without stopping, fully along the rounded bottom edge 10e to end at d (FIG. 2). To finalize the operation, pigtails e may be then severed. The casing 30 thus formed is now ready for filling or stuffing with a suitable food, such as with ground meat 31. This produces a substantially cylindrical shape which is closed-off, except for its upper end which may be then closed-off at the completion of the stuffing operation by a wire loop or a string tie 32 (see FIG. 5) about the casing 30, below its offset front edge 13a. The completed casing 30 may have about ⅛ of an inch width of reinforcing, crosswise-edge-overlapping, lengthwise-advancing stitching that extends a uniform distance from its edges, as represented by the looped strands 21 and 22. As will be noted, one strand loops across one side of the casing and the other strand loops across the other side.

The stitching A provides a loose, chain-like hanger loop or thread braid 15 across the upper open end of the casing which may serve as a hanger or handle for the casing as, for example, when it has been filled with food 31 (shown in FIG. 5) and is ready for further processing, as by dipping in a liquidized emulsion, such as set forth and described in U.S. Pat. No. 3,635,738. In accordance with the invention, uniform, approximately ⅛ of an inch width of the chain-like stitching A which is advanced longitudinally crosswise of the fibers of the pattern piece, serves to reinforce the casing in the direction of its cross or horizontally extending fibers and to at least not weaken it from the standpoint of such fibers, where at the lower convex or rounded end 10a, an approach is made to stitching extending substantially parallel to such fibers, provided as previously pointed out, the criteria previously set forth is met.

Further, by way of example, a typical casing, sock or bag 30 may be made up from a cut-out pattern piece 8 having an approximate length as folded of about 27 ½ inches from the offset edge 13a and an approximate width of 4 ½ inches. The rounded bottom end or edge 10a of convexly rounded shape may be formed using a radius from the center of the folded pattern piece 8 of about 2 ¼ inches. The twice doubled-over bottom portions 10b may extend upwardly about ¾ of an inch to assure the additional strengthening for the area or extent of central edges (between b and c) which closely approximates and may at the base substantially reach the direction of extension of the fibers of the material or, in other words, which may have stitching advancing in an angular relationship with respect to the longitudinal axis of the pattern piece of about 90°. Where there is an angular relation between the direction of stitching or between the direction of advance of the throughextending thread 20 with respect to the direction of the fibers of about 45° or less, the maintenance of the hole diameter to thread diameter criterion assures a strong and secure stitched relation, as between points c and d of FIG. 2. The stitching A may have about ¼ of an inch of chain-like extent and will tend to flatten along the body of adjacent material when the food product 31 has been inserted or stuffed within the top opening of the casing 30 (see FIG. 7). Thus, the side and bottom stitching may be completely camouflaged by the application of an emulsion coating 35 (see FIG. 8), in a manner such as described in the previously mentioned U.S. patent.

The paperlike material used may be of the same type as set forth in the previously mentioned copending application; for example, having a weight of about 1.25 to 1.95 oz./yd., with an 850 paper gauge being sufficient. The use of a plural thread, basket or blanket type of weave along with the extreme bottom, four-ply, fold-over reinforcement, and the control of the size of the thread openings in the material in comparison to the diameter of the thread used, gives the best possible strength. In reality, there is no point of weakness which will tend to give way, either during the stitching operation, when the casing is being filled, or when it is hung from its braid loop 15. In this way, five pounds or more of meat can be used, with the final product having a symmetrical pleasing appearance that is so important in selling food products.

It will be apparent from the above description that the double folding over to produce a four-ply centrally disposed bottom end portion 10b will not be necessary if the rounding along its full length or extent has an angular relation with respect to a transverse axis representing the direction of the fibers of the pattern piece. However, when a substantially parallel or non-angular relationship is desired, the material of the pattern piece should then be folded upwardly or over to provide a quadruple or twice doubled thickness (10b) to assure that tearing is avoided and that necessary strength is attained along the stitched bottom edge portions of the casing which have to substantially fully support the weight of the food content 31 of the casing 30. It will be noted that the casing may be trimmed substantially simultaneously with the stitching where a machine operation is being accomplished.

We claim:

1. A method of making a relatively thin-wall hollow food-receiving casing from a relatively flat length of non-woven paperlike material whose fibers extend substantially crosswise of its length which comprises, folding-over a length of the material to provide a pattern piece having a fold-closed longitudinal side, an opposed longitudinal side having a pair of open edges, and open upper and lower ends; double folding-over a central bottom end portion of the folded-over piece to provide a four-thickness portion, cutting the folded-over pattern piece at its lower end into a convoluted rounded shape about the four-thickness portion, applying a longitudinally advancing and cross-looped edge-overlapping multi-thread stitching of thread along edge portions of the closed and open longitudinal sides and along the rounded lower end of the pattern piece to provide a closed-off stitching-reinforced casing having an open upper end for stuffing a food product therein, and controlling the stitching operation to assure a close engagement of the thread with hole portions formed in the material at least about the four-thickness rounded end portion of the pattern piece.

2. A method as defined in claim 1 wherein the double folding-over is accomplished along a central bottom
portion of the pattern piece whose curvature of cut provides a substantially parallel relationship with respect to the cross-extending fibers of the material.

3. A method as defined in claim 2 wherein opposite rounded portions of the bottom end that extend from the four-thickness central bottom portion are preferably provided with a curvature that is at least about 45° with respect to the direction of extension of the fibers of the material.

4. A method as defined in claim 1 wherein hole portions are formed along the full extent of the rounded bottom end portion of the pattern piece during the stitching of a minimized diameter that assures close engagement with thread extending therethrough after completion of the stitching operation.

5. A method as defined in claim 1 wherein the stitching is applied continuously above and across the upper open end of the pattern piece to form an integral chain-like hanger loop between the longitudinal sides thereof.

6. An improved relatively thin-wall hollow product-receiving casing that is longitudinally elongated and comprises, a folded-over flat length of non-woven paperlike material whose fibers extend substantially crosswise of its length; said casing having substantially opposed reinforcing exteriorly looped stitching along its folded-over longitudinal side, along its opposite open-edge longitudinal side and along its bottom end; the layers of said bottom end being double folded over to provide a four-thickness portion and shaped to define a convexly rounded edge that terminates at its ends in the opposite longitudinal side edges, said stitching comprising multi-threads in a basket type pattern in which one thread extends in a longitudinally advancing relation through the material in a spaced relation from and along its edges, and in which two of its threads are in the form of cross-extending edge-overlapping loops on opposite sides of the material through which the one thread extends, and said one thread having its diameter in a closely fitting through-extending relation with the material at least along the bottom end of the casing.

7. An improved casing as defined in claim 6 wherein the four-thickness portion of said bottom end is centrally disposed.

8. An improved casing as defined in claim 7 wherein the slope of curvature of said centrally disposed four-thickness portion approaches a substantially parallel relation with respect to the crosswise extension of the fibers of the material.

9. An improved casing as defined in claim 6 wherein, a central bottom end portion of the bottom end of the casing has rounded edges that extend substantially parallel with respect to the fibers of the material and includes said four-layer thickness of the material, side connected rounded edges of the bottom end of the casing are of dual thickness and lie between dual thickness side edges and said four-layer thickness central bottom end portion, and said side connected rounded edges extend in an angular relation with respect to the fibers of the material.

10. An improved casing as defined in claim 7 whose upper end is open and has a chain-like hanger loop of the stitching that extends across from upper ends of and is connected to side stitching thereof.

11. An improved casing as defined in claim 10 wherein, the casing has an upper open end portion, and a back thickness layer of the material has a tab extending upwardly beyond a front thickness layer of the material at the upper open end portion thereof.