

March 10, 1942.

W. J. GEIST

2,275,896

CONTAINER AND METHOD OF MAKING THE SAME

Filed April 20, 1939

2 Sheets-Sheet 1

*Fig. 1.*

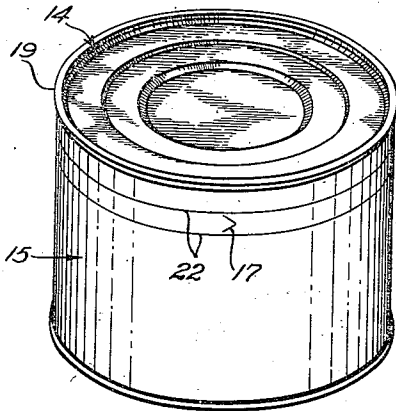


*Fig. 2.*

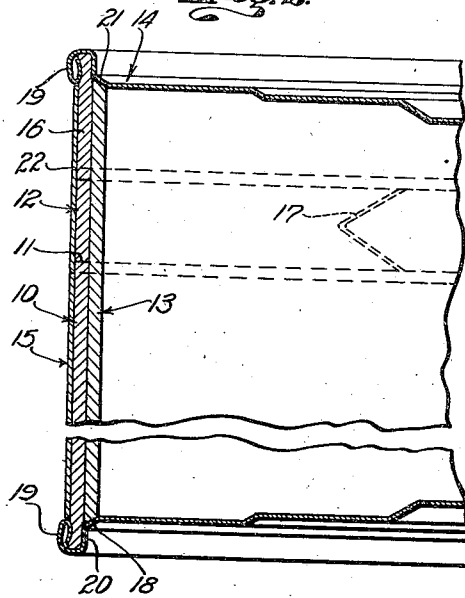


*Fig. 3.*

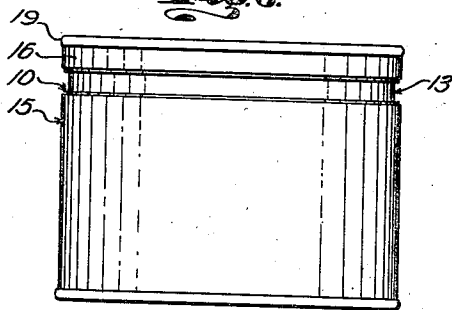


*Fig. 4.*

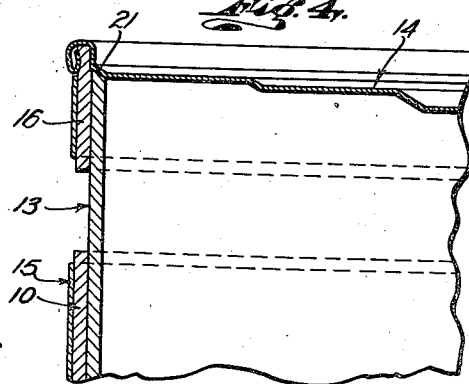


*Fig. 5.*

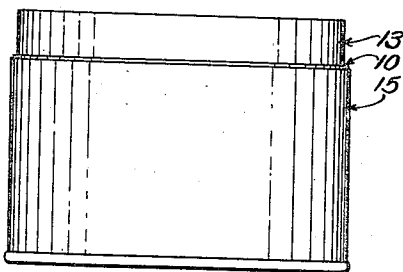
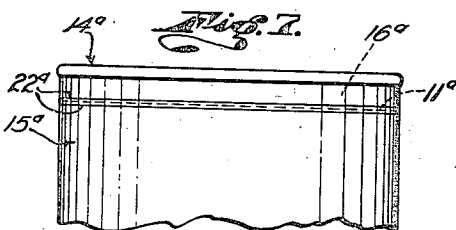
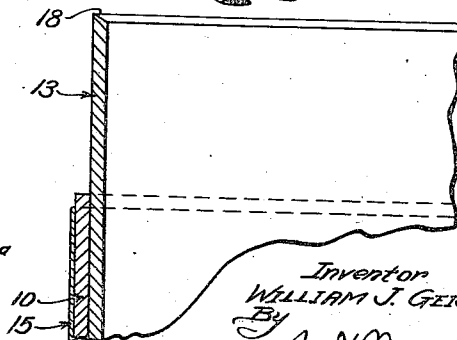


*Fig. 6.*



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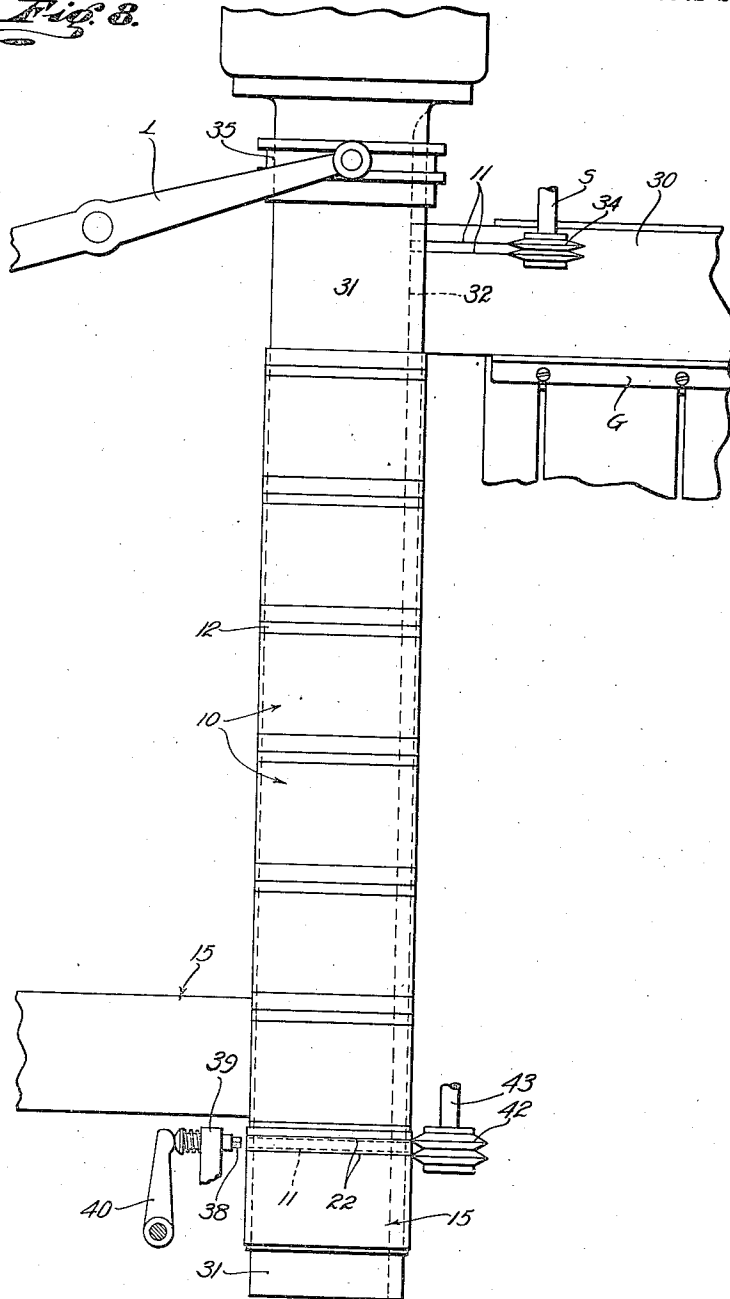
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CONTAINER AND METHOD OF MAKING THE SAME

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2 Sheets-Sheet 2

*Fig. 3.*



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## UNITED STATES PATENT OFFICE

2,275,896

## CONTAINER AND METHOD OF MAKING THE SAME

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Application April 20, 1939, Serial No. 268,900

5 Claims. (Cl. 229—51)

This invention relates to containers and relates more particularly to paper or cardboard containers and to methods of making the same. A general object of this invention is to provide a simple, practical and inexpensive paper container and a commercially practical method of making the same.

Another object of this invention is to provide a container formed of paper, cardboard, or other fibrous material that may be quickly opened by merely pulling free an opening strip or tear strip, which operation frees the cover of the container for immediate removal.

Another object of this invention is to provide a container of the character mentioned in which the tear strip is a free, independent, section of the container body capable of being removed without tearing, bending, distorting or otherwise injuring the body or the cover portion of the container.

Another object of this invention is to provide a container of the character mentioned in which the label serves to retain the free strip in its place in the body wall and to seal at the cuts defining the tear strip.

Another object of this invention is to provide a container of the character mentioned in which the label is prepared to readily part or tear along definite lines when the tear strip is withdrawn to open the container.

Another object of this invention is to provide a container of the character mentioned embodying a liner having sealing contact with the container heads or ends providing effective seals above and below the tear strip to assure the complete sealing of the container.

Another object of this invention is to provide a container of the character mentioned so constructed that the upper head and the section of the body seamed thereto form a cover adapted to be replaced on the liner after the container has been opened.

Another object of this invention is to provide a method for making a container of the character mentioned in which the tear strip is cut or formed simultaneously with the formation of the container body so that the body may be formed of a simple length or strip of paper stock and may have as many layers or laminations as required.

Another object of this invention is to provide a method for making a container of the character referred to in which the label is applied and scored during the formation of the body or immediately thereafter to bind together the sev-

eral parts or sections of the body for handling as a unit.

Another object of this invention is to provide a method of the character mentioned that includes the cutting of the tear strip and the label to provide a tab or free end that is easily accessible for grasping when the tear strip is to be removed.

A further object of this invention is to provide a method of the character mentioned in which the operations of forming the body, defining the tear strip, applying the label, scoring the label and cutting the tab are performed on a single mandrel in a single series of operations.

The various objects and features of my invention will be fully understood from the following detailed description of typical preferred forms and applications of the apparatus and a manner of carrying out the method of the invention, throughout which description reference is made to the accompanying drawings, in which:

Fig. 1 is a perspective view of one form of container of the invention. Fig. 2 is an enlarged fragmentary longitudinal detailed sectional view of the container shown in Fig. 1. Fig. 3 is a side elevation of the container with the tear strip removed. Fig. 4 is an enlarged fragmentary longitudinal detailed sectional view of the container with the tear strip removed. Fig. 5 is a side elevation of the container with the cover portion removed. Fig. 6 is an enlarged fragmentary longitudinal detailed sectional view of the container with the cover portion removed. Fig. 7 is a fragmentary side elevation of another form of container of the invention, and Fig. 8 is a more or less diagrammatic view illustrating the manner in which the container is constructed in accordance with the invention.

I will first proceed with a detailed description of two typical forms of containers of the invention and will follow such description with a disclosure of the method of making the containers.

The container of the present invention illustrated in Figs. 1 to 6, inclusive, may be said to comprise, generally, a tubular body 10, parted or cut along spaced adjacent lines 11 to have a removable tear strip 12, a tubular liner 13 in the body 10, ends or heads 14 closing the ends of the body 10, and sealing with the liner 13, and a label 15 on the body 10 retaining the tear strip 12 and the other parts of the body in the assembled relation.

The body 10 is a tubular element formed of paper, cardboard, or other fibrous material, and

in practice may be cylindrical and of uniform diameter. As will be later described, the body 10 is preferably formed by wrapping a strip of paper stock, or the like, on a mandrel to provide the body wall with two or more wrappings or layers. These layers of the body 10 are adhesively secured together to increase the strength of the body. The container body 10 may be coated, treated, or formed to be moisture proof and to be resistant to the material to be packaged.

In accordance with the invention the body 10 is sectional, that is, it is cut to have the removable tear strip 12. The tear strip 12 is adjacent but spaced from the upper end of the body 10. The strip 12 is formed by making two spaced parallel circumferential cuts 11 through the wall of the tubular body 10. The cuts 11 divide the body 10 into a major lower portion, the tear strip 12 and an upper section 16. It is to be understood that the cuts 11 are continuous around the body to separate or space its major lower portion and its upper section 16. The tear strip 12 is cut or split having a cut 17 connecting the two cuts 11. The cut 17 is preferably V-shaped as best illustrated in Fig. 1, to provide the strip 12 with a tab or end that may be easily pried out or projected from the surface of the body for ready grasping.

The liner 13 is arranged in the tubular body 10 and lies against the internal surface of the body. The liner 13 is a simple, tubular member of paper, cardboard or the like, coated, treated or formed to be moisture proof and resistant to the action of the material to be packaged. In accordance with the invention the liner 13 is proportioned to accurately fit the body 10 and its engagement with the internal surface of the body serves to strengthen the body and to hold its several sections against radial or lateral shifting and displacement. It is preferred to construct the liner 13 shorter than the body 10 so that its ends are spaced inwardly from the ends of the body. The opposite ends 18 of the liner 13 are sloping or beveled for the purpose to be hereinafter described.

The ends or heads 14 close the opposite ends of the container body 10. The heads 14 may be formed of metal, for example, they may be constructed of the tin plate commonly employed in containers. In the preferred construction the heads 14 are alike in size and construction. Beads or seams 19 serve to secure the heads 14 to the body 10. The seams 19 are curled or seamed on the body 10 in the manner well known to those skilled in the art. In accordance with the invention the heads 14 are shaped to engage against the ends of the body 10 and are depressed to have axial flanges 20 engage against the inner surface of the body. The heads 14 are provided with sloping shoulders 21 which extend inwardly from the flanges 20. The shoulders 21 are annular and have sealing cooperation with the bevelled ends 18 of the liner 13. When the heads 14 are seamed to the container body 10 the shoulders 21 are brought into tight sealing cooperation with the liner ends 18. The tight engagement of the shoulders 21 with the liner ends 18 causes the end portions of the liner 13 to be wedged against the inner surface of the body 10. Thus the liner 13 seals with the heads 14 and with the body 10 at the opposite ends of the container to assure the complete air-tight and fluid tight sealing of the container. The sealing and

wedging engagement of the liner 13 with the shoulders 21 and the internal surface of the body 10 increases the rigidity of the container. The inner portions of the heads 14 may be grooved, corrugated or stepped to increase the rigidity of the heads.

The label 15 is applied to the external surface of the body 10 and is provided to carry the printed matter, trade-mark, etc. The label 15 is formed of paper, or the like, and is preferably a continuous strip or section of material extending completely around the body 10. In the preferred construction the label 15 is proportioned to have its edges adjacent the seams 19. The ends of the label 15 preferably overlap so that the label constitutes a continuous or endless seal around the body 10. The inner surface of the label 15 is adhesively secured to the body 10. The adhesive is preferably evenly distributed so that the label is secured to the body throughout its circumference and length. The label 15 arranged and applied as above described covers and conceals the tear strip 12 and ties together or connects the section 16 and the tear strip 12 with the major lower portion of the body 10. The liner 13 closely fitting in the body 10 prevents lateral relative movement of the body parts and the label 15 serves primarily to prevent relative endwise or relative longitudinal movement of the body parts. The label 15 operates to hold the section 16 and the major portion of the body 10 in close or tight engagement with the opposite edges of the tear strip 12 so that the assembly is, in effect, a continuous tubular element.

The cut 17 described above, extends into or through the label 15 to be visible and engageable at the exterior of the container. It is preferred to print or otherwise mark the label 15 with instructions regarding the engagement of the tab provided by the cut 17. In some cases it may be preferred to leave the label 15 imperforate, that is, to confine the cut 17 to the tear strip 12, in which case the label may carry instructions regarding the tearing or perforating of the label to expose the tab at the cut.

The label 15 may tend to tear crookedly or to peel off when the tear strip 12 is removed and the invention provides means for preventing this and for assuring the straight cutting or tearing of the label. Spaced circumferential lines 22 of scoring are provided in the label 15 adjacent the cuts 11. It is preferred to offset the scoring lines 22 from the cuts 11 so that the label will not be perforated or cut when it is scored.

It is believed that the utility and practicability of the container illustrated in Figs. 1 to 6, inclusive, will be readily understood from the foregoing detailed description. Prior to the opening of the container the section 16 and the tear strip 12 are rigidly and dependably secured to the main portion of the body 10 so that the container is strong and rigid. The liner 13 resists any tendency of the body parts to shift laterally while the label 15 securely holds the body parts against axial shifting. The shoulders 21 of the heads 14 effectively seal with the beveled ends 18 of the liner 13 and hold the liner in tight sealing engagement with the body 10 so that the container is air tight and fluid tight. It is to be observed that the container does not have any unsightly projections, keys, tabs or the like.

When it is desired to open the container the label 15 and the tear strip 12 are engaged at the

tab provided by the V-shaped cut 17 and the tear strip is pulled or unwound from the container. This, of course, disconnects the body section 16 from the main lower portion of the body and the section 16 with the upper head 14 may be slid from the liner 13. This, of course, completes the opening of the container. When it is desired to reclose the container the section 16 is slid down over the projecting upper portion of the liner 13 to a position such as illustrated in Figs. 3 and 4. When this is done the shoulder 21 of the upper head 14 seats on the beveled upper end 18 of the liner 13 to reseal the container. The free or projecting upper portion of the liner 13 forms an effective carrier for the cover section 16 and its head 14. The container of the invention may be opened without employing keys, or other tools, and may be closed after opening by replacing the section 16 with its head 14.

Fig. 7 of the drawings illustrates a form of container in which the body 10 has a single circumferential cut 11<sup>a</sup>. The cut 11<sup>a</sup> divides the container body into a major lower portion and a short upper section 16<sup>a</sup>. Heads 14<sup>a</sup> are applied to the opposite ends of the container, as described above, and a label 15<sup>a</sup> is applied to the outside of the container body. The label 15<sup>a</sup> covers and conceals the cut 11<sup>a</sup> and serves to connect the section 16<sup>a</sup> with the main part of the container body. Lines 22<sup>a</sup> of scoring are provided in the label 15<sup>a</sup> and are spaced at opposite sides of the cut 11<sup>a</sup> to assure the straight cutting or tearing of the label when the container is opened. The container illustrated in Fig. 7 of the drawings may be readily opened by drawing a fingernail or a knife blade or similar implement along the cut 11<sup>a</sup> to cut through the label 15<sup>a</sup>. This operation of course frees the section 16<sup>a</sup> and its head 14<sup>a</sup> from the container and the section may be readily slid from the liner 13. The section 16<sup>a</sup> carrying its head 14<sup>a</sup> may be reapplied to the liner 13 to close the container.

The method of the invention for producing the container illustrated in Figs. 1 to 6, inclusive, may be said to comprise, generally, the forming of the body 10, the making of the cuts 11 during forming of the body 10, the application of the label 15 to the body 10, the scoring of the label 15, the formation of the cut 17, the assembling of the liner 13 in the body 10 and the application of the heads 14.

The body 10 is formed by wrapping a length of paper stock 30 on a mandrel 31. The mandrel 31 is intermittently rotated and has a longitudinal slot 32 receiving the advancing edge of the body stock 30. The body stock 30 is convolutely wound or wrapped on the mandrel 31 by rotating the mandrel and the stock is guided by a guide G to have its edges even and in common planes. One surface of the body stock 30 carries an adhesive so that the layers or wrappings constituting the body 10 are adhesively joined. The body stock 30 is of such length that the body 10 has two or more layers or convolutions.

The cuts 11 defining the tear strip 12 are made simultaneously with the formation of the body 10. The spaced parallel cuts 11 are made in the body stock 30 as the stock passes onto the mandrel 31. With the typical equipment illustrated sharpened disc-shaped cutters 34 are fixed on a rotating shaft S and are rotated to cut through the strip of stock 30 when the same is wound on the mandrel 31. The cutters 34 cut through

the body stock 30 the entire length of the stock as the stock advances to the mandrel. It is to be noted that the cuts 11 are formed in the simple length of paper stock 30 at the time of formation of the body 10, making it unnecessary to employ pre-cut stock and eliminating a separate cutting operation.

Following the wrapping or forming of the body 10 the body is shifted or slid along the mandrel 31. The adhesive holds the several layers of the body together so that the body maintains its cylindrical form. The invention contemplates the successive formation of a plurality of container bodies 10 and at the completion of each body 10 it is shifted along the mandrel 31 a distance equal to or slightly greater than its length to advance the previously formed bodies an equal distance. A lever L may operate a shifting ring 35 along the mandrel 31 to successively advance the bodies 10.

The label 15 printed to have the trademark, directions, instructions, etc. is applied to the container body 10 after the body has been shifted along the mandrel 31 from its point of formation. Thus, in the case illustrated, the label 15 is applied to one of the bodies 10 at a point some distance from the body stock 30 being wrapped on the mandrel. The label 15 is preferably a pre-cut length of paper, or the like, guided onto the selected body 10 so that its longitudinal edges are adjacent the ends of the body. The label 15 carries adhesive which is placed to contact the external surface of the body 10 so that it secures the label to the body. The ends of the label 15 overlap when the label is wrapped on the body 10. It will be apparent how the label 15 may be brought against the body 10 to be wrapped on the body when the same rotates with the mandrel 31. The label 15 may be applied to the body 10 simultaneously with the wrapping or forming of one of the other bodies 10.

The cut 17 may be made following the application of the label 15. The cut 17 may be formed in the container body just before the same leaves the mandrel 31, that is, it may be formed in the container body 10 about to leave the mandrel. Any suitable means may be utilized to make the cut 17. In the case illustrated a spring held punch or cutter 38 is supported by an arm 39 and is actuated by a rocker 40. The rocker 40 may be timed to actuate the cutter 38 when the end-most container body 10 is stationary.

The label 15 may be scored either before or following the making of the cut 17. The scoring lines 22 may be made by discs 42 fixed to a rotatable shaft 43 which is controlled and moved to bring the discs into engagement with the label 15 at the proper time and in proper synchronism with the other elements of the machine. Following the formation of the cut 17 and the scoring lines 22 the container body 10 carrying the label 15 passes from the mandrel 31.

The liner 13 is then assembled in the body 10. The liner 13 may be formed in any selected manner and is pre-cut to have the bevelled ends 18. Following the insertion of the liner 13 a head 14 is applied to one end of the body 10. The container is then filled and the other head 14 is seamed to the body. This completes the formation of the container.

Having described only typical preferred forms and applications of the apparatus of my invention, and a typical manner of carrying out the method, I do not wish to be limited or restricted

to the specific details herein set forth, but wish to reserve to myself any variations or modifications that may appear to those skilled in the art or fall within the scope of the following claims.

Having described my invention, I claim:

1. A container comprising a tubular body having spaced circumferential cuts dividing it into end sections and a removable strip between the end sections, a tubular liner fitted in the body, heads seamed to the opposite ends of the body and sealing with the ends of the liner, and an outer frangible covering member secured to the outer surface of the body to connect the end sections and scored to break adjacent said cuts when the strip is removed, there being aligned cuts in the strip and covering member generally transverse of the first named cuts providing a tab engageable for the purpose of removing the strip.

2. A container comprising a tubular body having spaced circumferential cuts dividing it into end sections and a removable strip between the end sections, a tubular liner fitted in the body, heads seamed to the opposite ends of the body and sealing with the ends of the liner, and an outer frangible covering secured about the body and connecting said end sections and designed to break along lines adjacent the cuts when the strip is removed, there being a cut in the strip connecting said spaced cuts and an aligned cut in the outer covering providing a tab engageable to remove the strip.

3. A container comprising a tubular body having spaced circumferential cuts dividing it into end sections and a removable strip between the end sections, the strip having a transverse cut, a tubular liner fitted in the body and having tapered ends, heads seamed to the opposite ends

of the body, tapered shoulders on the heads sealing with the tapered ends of the liner, and an outer member adhesively secured on the body to cover said cuts and to connect the end sections and strip and designed to fall when the strip is removed, the outer member having a cut registering with the cut in the strip whereby the strip is accessible for removal.

4. A container comprising a tubular fibrous body having a pair of spaced circumferential cuts dividing it into a lower section, an upper section and a removable strip between the sections, a tubular liner of fibrous material in the body, metal heads seamed on the ends of the body and sealing with the ends of the liner, and a paper label adhesively secured on the body to connect the end sections and the strip, there being a cut in the label and said strip parting the strip and making the strip accessible for removal to break the label and thus allow the removal of the upper section and its head.

5. A container comprising a tubular fibrous body having a pair of spaced circumferential cuts dividing it into a lower section, an upper section and a removable strip between the sections, a tubular liner of fibrous material in the body, metal heads seamed on the ends of the body and sealing with the ends of the liner, and a paper label adhesively secured on the body to connect the end sections and the strip, there being a cut in the label and said strip parting the strip and making the strip accessible for removal to break the label and thus allow the removal of the upper section and its head, the label having lines of weakening offset from the pair of cuts so the label breaks along definite lines.

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