

[54] **SHADOW BOX CARTON** 3,578,154 5/1971 Martelli 206/45.14
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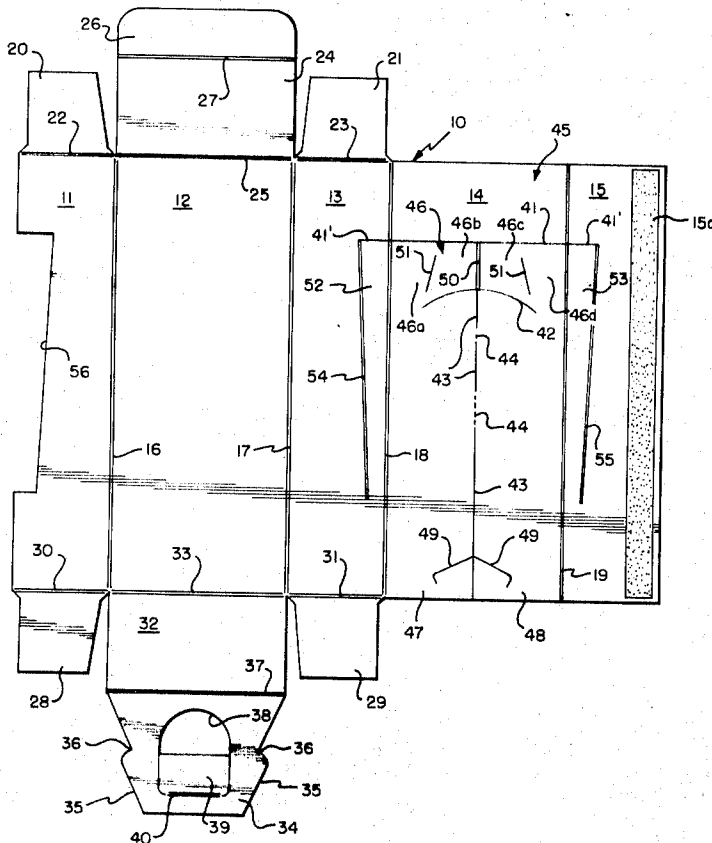
[52] U.S. Cl. **206/45.14**
 [51] Int. Cl. **B65d 5/50**
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 206/45.31, 46 FR; 229/14 C, 39 B

[57] **ABSTRACT**

A shadow box structure in which an article supporting strap extends completely across the front of the carton is disclosed herein. The article strap itself is of greater than full carton width being derived in part from the front wall panel and of the two carton side wall panels.

[56] **References Cited**
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8 Claims, 5 Drawing Figures



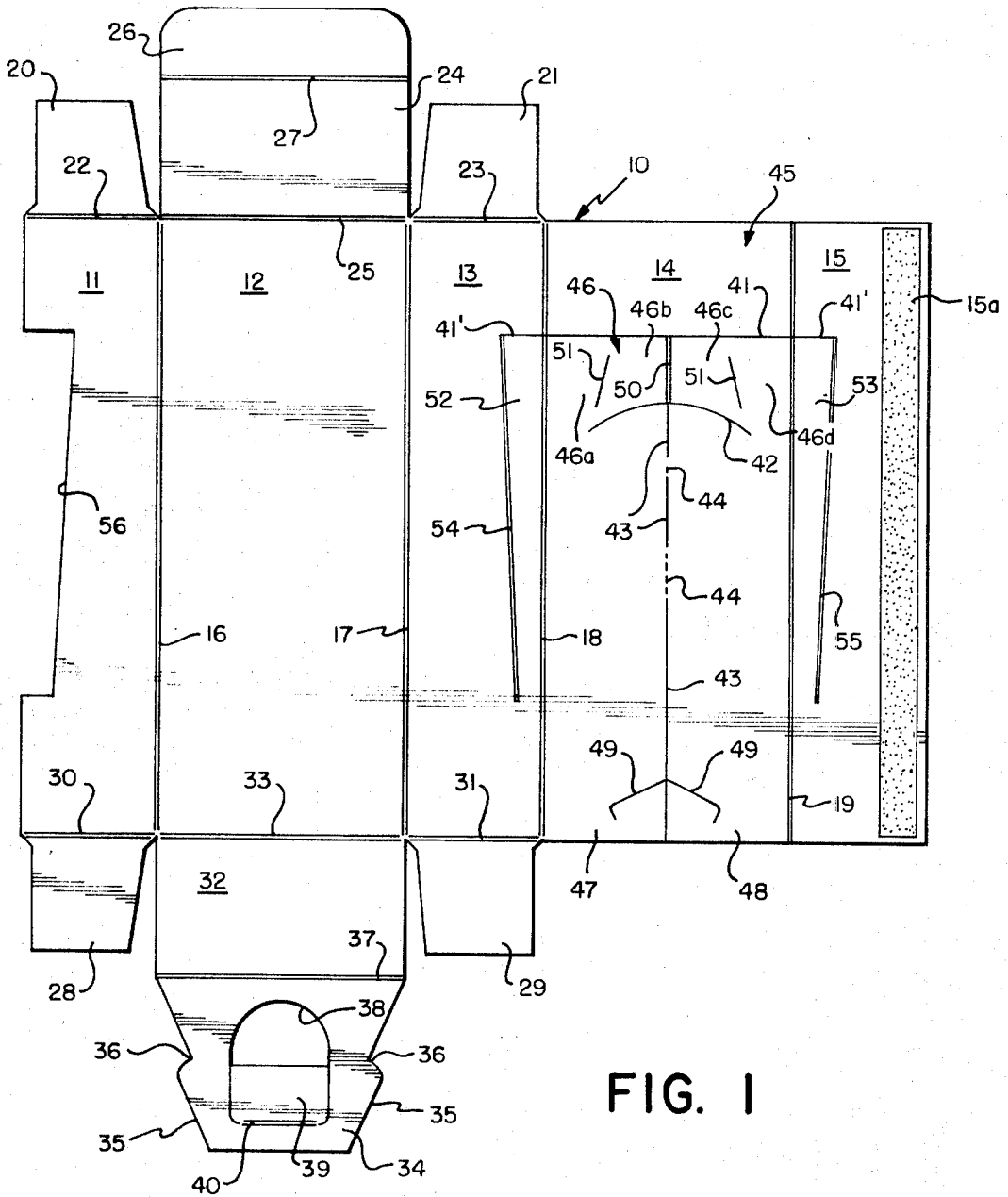


FIG. 1

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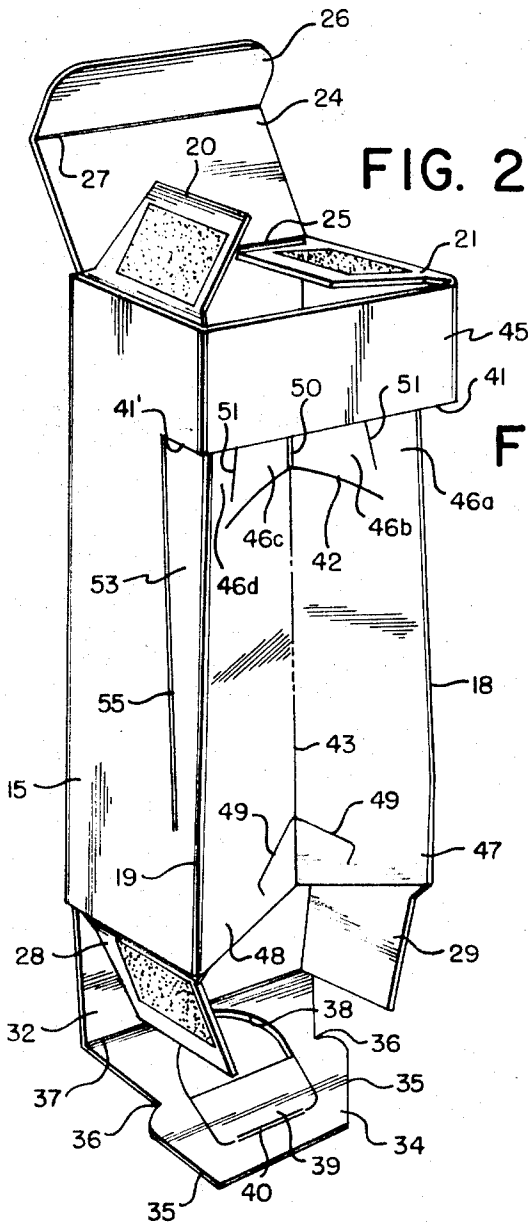


FIG. 2

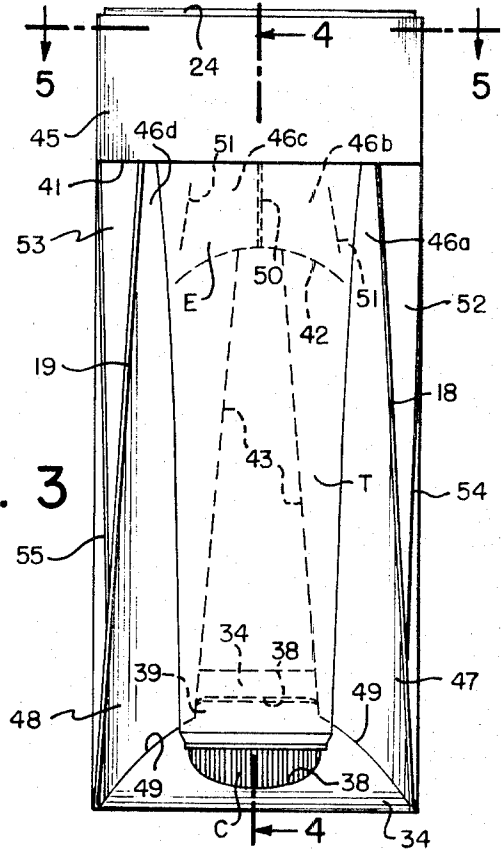


FIG. 3

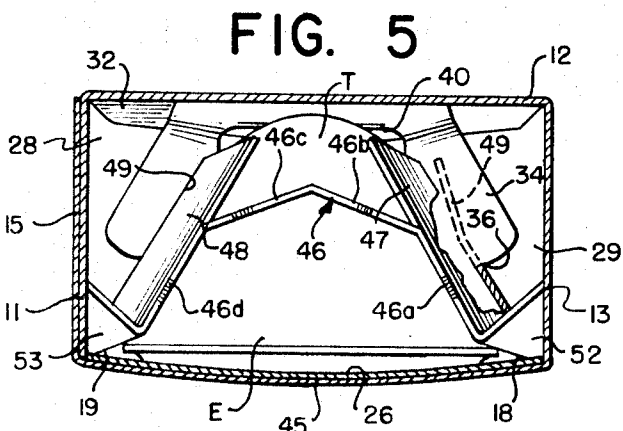


FIG. 5

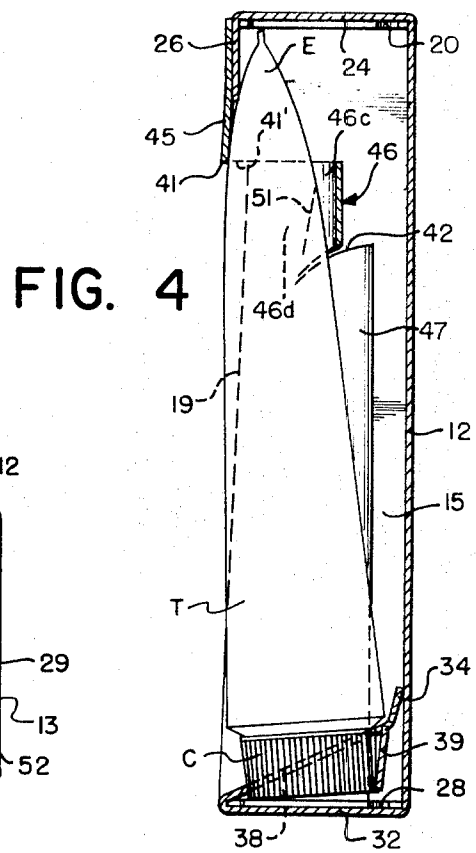


FIG. 4

SHADOW BOX CARTON

BACKGROUND OF THE INVENTION

A shadow box carton is a carton having side walls, top and bottom walls, a rear wall, and a front wall structure in which shadow panels provide a close fitting frame for an article to be displayed and viewed from the front of the carton. The carton of the present invention is intended for the packaging of elongated articles such as tubes having a cylindrical cap at one end and a narrow crimped structure at the other end.

In conventional shadow box cartons, longitudinally extending shadow panels are hinged to the front edges of the side walls of the carton and these panels extend angularly into the carton to frame the article. Typically, at the top and bottom ends of the carton, support structures for the article are provided. For packaging squeeze tubes, these include, for example, apertured bottom flaps adapted to be folded into the carton for retaining the cap end of the tube to hold it in a fixed position and upper lateral transverse structures for engaging the crimped ends of the tubes. The present invention is directed to improvements in such upper structures.

SUMMARY OF THE INVENTION

The new structure is embodied in a tuck carton which includes a bottom wall, two side walls, a front wall and a glue flap. Advantageously, the new structure may be used to form a generally rectangular flattened tube for subsequent squaring and filling by "tube style" packaging equipment or it may be used to form trays by "glue locking" or mechanical locking for subsequent filling. The carton upper end is closed off by end flaps which are foldable across the ends of the carton and are held in place by tuck flaps projecting into the carton or by mechanical or glue locks. Support for the tube cap is provided by an aperture formed in a lower tuck flap of the carton.

In accordance with the present invention, new and improved shadow panels are formed by longitudinally slitting the lower front wall portions of the carton. Biasing support for the crimped end of the tube which urges the flat end of the tube against the upper front wall of the carton is provided by a unique horizontal strap which extends completely across the front wall of the carton from the parallel planes of the side walls. The strap includes foldable articulated gusset members derived from the leading edges of the opposite side walls of the carton and integral contiguous portions derived from the front wall of the carton immediately above the uppermost portions of each of the shadow panels. The central portions of the strap bridge the upper edges of the two shadow panels. These central strap portions are themselves articulated along a vertical score which is colinear with the cut dividing the lower portions of the front panel into the shadow panels.

For a more complete understanding of the present invention, reference should be made to the following detailed description of the carton of the present invention taken in conjunction with the accompanying drawings.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of a blank embodying the principles of the invention from which the new shadow box may be formed;

FIG. 2 is a perspective view of the new carton of the invention in intermediate stages of its formation;

FIG. 3 is a front elevational view of the new carton of the invention;

FIG. 4 is a cross sectional view of the new carton taken along line 4—4 of FIG. 3; and

FIG. 5 is a horizontal cross sectional view of the carton of the invention taken along line 5—5 of FIG. 3.

DETAILED DESCRIPTION OF THE PRESENT INVENTION

Referring now to FIG. 1, a blank 10 of flexible sheet material such as paperboard from which the new carton may be erected, includes a first side wall panel 11, a rear wall panel 12, a second side wall panel 13, a front wall panel 14 and a glue flap panel 15 consecutively articulated along parallel vertical score lines 16, 17 and 18 and 19, respectively. Conventional tuck closures are disposed at the top and bottom edges of the panels 11—13. Specifically, the upper tuck closure includes dust flaps 20, 21 articulated along upper horizontal score lines 22 and 23 to the side wall panels and a top end panel 24 articulated to the rear wall panel 12 along a horizontal score line 25, which top panel also has a closing tuck flap 26 articulated thereto along a score line 27. The lower tuck closure of the carton includes dust flaps 28, 29 articulated to the side walls along horizontal score lines 30, 31 as shown, and a bottom end panel 32 articulated to the rear wall along a horizontal score line 33. Articulated to the end of the bottom panel 32 is an article support flap 34, the side edges 35 of which are generally convergent and include locking notches 36. The flap 34 is articulated to the bottom panel 32 along a score line 37 as shown. The central portions of the flap 34 define an article engaging aperture 38 as well as an article engaging flap 39 which is articulated to an edge portion of the aperture 38 along a score line 40.

In accordance with the principles of the invention, the front wall panel 14 is divided by a full width horizontal transverse cut 41; a less than full width (advantageously arcuate) transverse cut 42; and a longitudinal cut 43 interrupted by nicks 44, into (from top to bottom) a carton front wall 45; an article engaging strap 46; and separable longitudinal shadow panels 47 and 48.

Specifically, a pair of divergent generally L-shaped cuts 49 are formed at the lower portions of the shadow panels 47, 48 as shown. In accordance with the invention, the strap 46 is divided into four portions by a vertical score line 50 and two generally vertical straddling lines of weakness 51 (short cuts), which extend generally between the ends of the arcuate transverse cut 42 and the transverse cut 41. The effect of the cuts 51 and the vertical score line 50 is to divide the strap 46 into four articulated segments 46a, 46b, 46c and 46d, respectively. The endmost strap segments 46a and 46d are themselves articulated to elongated suspension panels 52, 53, respectively, formed at the leading edges of the side wall panel 13 and the glue flap panel 15, respectively, as shown. More specifically, the suspension panels 52 and 53 are formed by lateral extensions 41'

of the transverse cut **41** and by score lines **54, 55** which extend from the ends of the cuts **41'** convergently downwardly toward the lower corners of the front wall panel **14**. In accordance with the invention, the suspension panels **52, 53** not only suspend the strap segments **46a-46d** inwardly of the carton, but they also suspend the upper edge portions of the shadow panels **47, 48** inwardly of the front plane of the carton. As an important aspect of the invention, the strap segments **46a, 46d** merge with the shadow panels **47, 48**, respectively, and tend to function both as straps and article framing elements in the completed carton. As shown, the free edge of the first side wall panel **11** has an elongated notch **56** formed therein, the shape of which is identical to that of the suspension panel **53**. As will be understood, when the glue flap **15** is adhered to the panel **11**, the suspension panel **53** will be superimposed over the notch **56** and will be free to be folded therethrough.

The carton of the present invention may be erected and filled as follows: A collapsed carton tube is initially formed by folding the panels **11, 12** about the score line **17**; then folding the glue flap **15** over the panel **11** and adhering the longitudinal strip of adhesive **15a** thereon to the portions of the panel **11** immediately adjacent the score line **16**. Thereafter, the carton is conventionally squared by applying pressure to opposite creased edges of the flat folded tube. The top structure is completed by infolding the dust flaps **20, 21** and then the tuck panel **24** at its projecting tongue **26**. The bottom of the carton is similarly completed by folding in the dust flaps **28, 29**; folding the bottom panel **32**; and finally infolding the tongue **35** inwardly of the front wall in a manner whereby the locking notches **36** engage and lock with the locking slot **49** of the shadow panels **47, 48**. This latter infolding will tend to rupture the nicks **44** which retain the shadow panels in the plane of the front wall **14** during initial tube formation and carton formation.

Subsequently, the article to be packaged in the shadow box, e.g., a squeeze tube **T** having a flattened end and an enlarged cap **C**, may be inserted in the carton merely by forcing the flattened end **E** of the tube against the strap **46** and pressing the same inwardly of the carton, a motion which will locate the strap inwardly of the plane of the front wall **14** by virtue of the suspension panels **52, 53** which are folded inwardly of the carton side walls and front wall. As will be appreciated, and in accordance with the principles of the invention, the strap **46** will engage the end **E** of the tube and will urge the same forwardly towards the open display face of the carton and against the inner surfaces of the front wall **14**, as shown best in FIG. 4. Thereafter, the cap **C** may be inserted in the aperture **38** formed in the closing tongue **35** where it will be held firmly in place by the edges of the aperture as well as by the surfaces of the flap **39**.

Alternatively, and as mentioned hereinabove, the new carton may be set up as a tray on "tray forming" equipment for front filling rather than being set up from a pre-glued tube. When used tray style, the blanks may be shipped flat and totally unglued. In the field, the tray style blanks are formed into trays by conventional end glue locks or end mechanical interlocks. Thus, for a tray style carton, the flaps **20, 21** will be glued (or interlocked) to the flap **24**, and the flaps **28, 29** will be glued (or interlocked) to the flap **32**.

As will be appreciated, the new carton provides a very secure support of a squeeze tube or the like in a rectangular shadow box carton, in a manner whereby the flattened end of the tube is resiliently urged against the upper front wall of the carton by a unique strap which extends completely across the front walls of the carton and is suspended by elongated suspension panels derived from the side walls of the carton. The new strap is of articulated construction and is effectively resilient and conformable to the general shape of the packaged tube. Moreover, the nature of the strap is such that it structurally links the upper portions of the shadow panels, which themselves are uniquely suspended inwardly of the front plane of the carton by lower portions of the suspension panels, thereby tending to create a more attractive shadow panel.

It is to be understood that the specific embodiment of the shadow box invention herein described is intended to be representative only, as certain changes may be made therein without departing from the clear teachings of the disclosure. Accordingly, reference should be made to the following appended claims in determining the full scope of the invention.

I claim:

1. In a carton for the display packaging of squeeze tubes and the like, said carton having a rear panel, side panels; top and bottom end flaps, and a divided front panel; said carton having a tube display opening extending from a lower end thereof to the inner edge of a front wall at the upper end thereof; said front wall being derived from uppermost portions of said front panel; said carton having a pair of shadow panels derived from the lower portions of the front panel and bent inwardly of the opening; an apertured bottom closing flap bent inwardly of the opening and interlocking with lower portions of said shadow panels; an improved article support including

- a. strap means extending completely across said opening and being separated from uppermost portions of said shadow panels by a transverse cut of less than the full width of said front panel and being separated from lowermost portions of said front wall by a transverse cut extending fully across said front panel; and
- b. suspension panels derived from said side wall panels;
- c. said suspension panels being articulated to said strap means and said shadow panels along vertical score lines;
- d. said suspension panels being articulated to said side wall panels along score lines converging toward the front face of said carton;
- e. said suspension panels being partially severed from said side wall panels by cuts at their upper edges which extend between the upper ends of said converging score lines and the lower corners of said front wall;
- f. said converging score lines being directed toward the lower front corners of said carton; and
- g. said converging score lines terminating short of said front corners.

2. The carton of claim 1, in which

a. said strap means is centrally divided by a vertical score.

3. The carton of claim 1, in which

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- a. said strap means further includes two lines of weakness dividing said strap into four articulated sections.
- 4. The carton of claim 1, in which
 - a. said strap means is separated from said shadow panels in a manner whereby the central portions of said strap means are narrower than the edge portions.
- 5. The carton of claim 4, wherein
 - a. said strap means is separated from said shadow panels by an arcuate cut.
- 6. In a carton blank for use in the display packaging of squeeze tube articles and the like, including consecutively articulated first side, rear, second side, and front wall panels; uppermost portions of said front wall panel forming a full width front wall; lower portions of said front wall panel forming a pair of shadow panels; and an apertured bottom closing flap means articulated to the lower edge of said rear wall panel and adapted to interlock with lower portions of said shadow panels during carton formation; an improved article support comprising
 - a. strap means extending completely across said front wall panel and being separated from the uppermost portions of said shadow panels by a transverse cut less than the full width of said front wall panel and being separated from the lowermost portions of

- said front wall panel by a transverse cut extending fully across said front wall panel; and
- b. suspension panel means formed in said side wall panels;
- c. said suspension panel means being articulated to said strap means and said shadow panels along vertical score lines;
- d. said suspension panel means being articulated to said side wall panels along score lines converging toward the lower corners of said front wall panel;
- e. said suspension panel means being partially severed from said side wall panels by cuts at their upper edges which cuts extend between the upper ends of said converging score lines and the lower corners of said front wall panel;
- f. said shadow panels being separable from one another along a line of severance, and
- g. said converging score lines being directed toward and terminating short of the lower corners of said front wall panel.
- 7. The carton blank of claim 6, in which
 - a. the central portions of said strap means are narrower than the edge portions of said strap means.
- 8. The carton blank of claim 6, in which
 - a. said line of severance includes a series of nicks.

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