

Feb. 9, 1965

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3,168,982

DRINKING STRAW

Filed March 7, 1963

FIG. 1

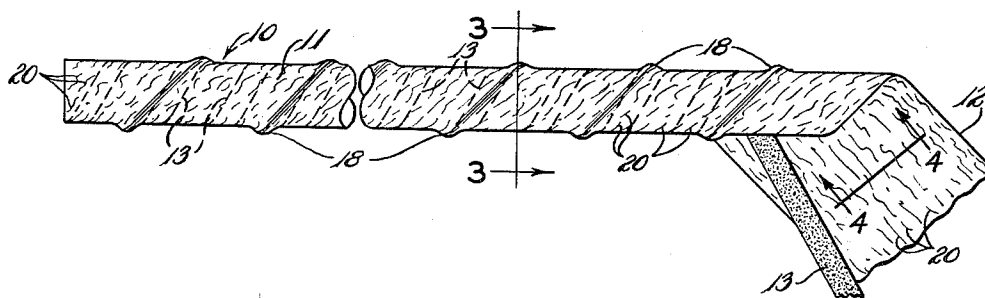
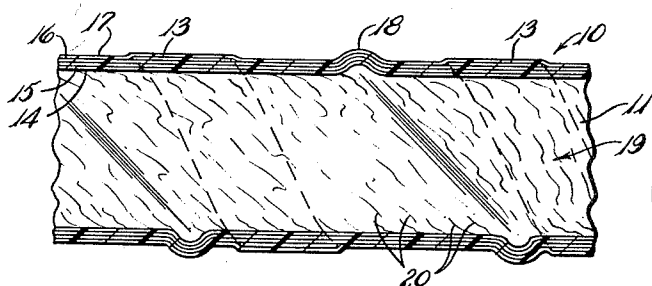


FIG. 2

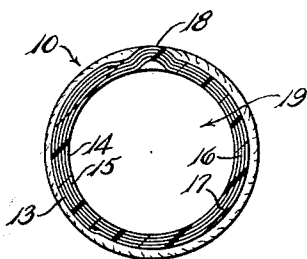


FIG. 3



FIG. 4

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3,168,982

DRINKING STRAW

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Filed Mar. 7, 1963, Ser. No. 263,620

3 Claims. (Cl. 239—33)

This invention relates to drinking tubes of the type used in dispensing milkshakes, soft drinks, liquid to the sick, and the like from suitable containers. Such tubes are generally known as drinking straws and shall be referred to as "straws" in this application.

Before the present invention said straws have not been entirely satisfactory due to cost, appearance, failure to function properly and to the awkward posture of the body of a user, often necessary to prevent kinking of the straw when the user was drinking from a container that was supported on a counter or a table.

Some of the objects of the present invention is to provide a straw that is economical, of pleasing appearance, convenient to use due to the flexibility of the body of the straw without kinking, a body that will spring open to its original cross-sectional shape if inadvertently collapsed. Another, and important, object is to provide a straw having a body wall that is stretchable longitudinally of the straw.

Other objects and advantages of the invention will be apparent to those skilled in the art, from the description in the specification and by reference to the drawing, wherein:

FIG. 1 is a plan view, somewhat pictorial, of a straw embodying the present invention, and being partly unrolled to better show the disposition of wrinkles of the material of which the straw is composed;

FIG. 2 is a fragmentary longitudinal sectional view drawn to an enlarged scale to illustrate the reinforcing wrinkles and the relative position of the layers of the straw;

FIG. 3 is a cross-sectional view taken on line 3—3 of FIG. 1; and

FIG. 4 is an enlarged fragmentary sectional view taken on line 4—4 of FIG. 1 to more clearly illustrate the small light-reflecting wrinkles on the body of the straw.

Referring now to the drawing in detail and to FIG. 1 in particular it will be seen that a straw referred to in general as 10, has a tubular body 11 (see FIG. 3) comprising a single principal strip 12, spirally wound upon itself forming said body. Preferably, but without limitation to the particular material, the strip 12 is composed of transparent regenerated cellulose of approximately .0015" thickness and has a heat sealable coating. The helically wound strip 12 has off-set edges of a width, relative to the width of the strip, to provide body 11 with four superimposed layers of the strip. For example, if strip 12 is 2½" wide the step-off would be ⅝" to provide said four layers.

For aesthetic effect and to strengthen body 11 a narrow colored strip 13 which may be of the same material except for color as that of strip 12 is spirally disposed in body 11 between the two outer of said layers thereof.

The surfaces of layers 14, 15, 16 and 17 shown in FIG. 2 are heat sealed together in air tight relation.

An important feature of the invention is an arrangement of rib-like reinforcing wrinkles 18, in body 11 and involving the entire thickness of the wall of the body, these wrinkles being spaced longitudinally of the body 11 at short distances relative to the length of the drinking straw. It is to be noted that each wrinkle 18 extends the length of body 11, although the invention is not to be so limited as obviously some of the value of the continuous wrinkles structure-wise, could be obtained if the wrinkles 18 were interrupted at intervals. It is important, too, that wrinkles 18 provide stretchability and compressibility

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to the wall of the body of the straw longitudinally thereof. Accordingly when the straw is subjected to a bending force wrinkles 18 permit that portion of the body wall on the outer side of the bend to stretch and that portion on the inside of the bend to shrink or have its longitudinal length reduced. This occurs, of course, in the case of stretching by the open bases of wrinkles 18 opening wider and in said shrinking by the open bases of the wrinkles being crowded closer shut. Consequently the closing of the passageway of the straw which occurs due to bending occurs gradually and does not completely close the passageway until the bending is extreme. Quite the opposite is true of the prior art straight straws as no relief or stretch is provided and such straws kink completely shut upon the slightest bending.

Applicant has found that a spacing of wrinkles 18, longitudinally of the body, of one half of the width of the overlap approximately is satisfactory when body 11 has a round hole as 19 of ¼" diameter. It is to be understood, however, that the invention contemplates openings or passageways through the length of the drinking straw of various configurations, as, for example, the opening may be oval in cross-sectional contour or of other shapes.

Wrinkles 18 project radially outwardly of body 11 and it is to be understood their height and spacing may be varied according to the size of the body and its passageway therethrough. In the present illustration of the invention the passageway is approximately ¼" in diameter and wrinkles 18 are approximately ⅛" in height. Since a function of the wrinkles is reinforcement it is obvious that they will have to be varied in respect to size and occurrence according to material used.

An arrangement of wrinkles 20 is provided in the wall of the body 11 in the areas between wrinkles 18. These latter wrinkles are numerous and smaller than wrinkles 18 and occur at random. Their principal function is to provide reflection of light striking the drinking straw. Wrinkles 20 provide little or no reinforcement of body 11 or resistance to bending of same. Wrinkles 18 provide substantial resistance to kinking of the body when the body is bent and it will now be seen that the small areas between wrinkles 18 permit easy bending of the body but which bending surface can extend only a short distance until the bending wall encounters a wrinkle 18 which resists collapse or kinking, however, the successive areas between wrinkles 18 will permit bending until wrinkle 18 again interrupts. This situation repeats itself along the length of the body so that the sum of the amount of bend in each said small area totals a sufficient amount, without kinking to avoid the necessity of a user; when drinking from a container that is supported on a table or bar too high for comfortable drinking through a straight drinking straw; either having to hold the container in his hand or to lean forwardly to place his mouth over the outlet end of the drinking straw.

While wrinkles 18 are primarily reinforcing elements they, like wrinkles 20, are useful in providing surfaces of the body material at various angles to light striking the body and due to the refraction properties of the transparent body material the general appearance of drinking straw is greatly enhanced.

The invention is susceptible to numerous modifications other than those specifically described, and the right is herein reserved to make such changes as fall within the scope of the appended claims without departing from the spirit of the invention.

I claim:

1. A drinking straw of the character described comprising:

(a) an elongated body having a longitudinal passageway therethrough,

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- (b) said body being composed of a strip of spirally wound sheet material,
 - (c) said strip being transparent and of substantial width and having its adjacent edges overlapped,
 - (d) a colored stripe of material narrow relative to said substantially wide strip, and being disposed between the said over-lapped edges of the body, 5
 - (e) said body having uninterrupted closely spaced rib-like reinforcing wrinkles that involve the entire wall thickness and extending spirally the length of the body and projecting radially outwardly therefrom, 10
 - (f) the body area between the rib-like reinforcing wrinkles having numerous shallow wrinkles in random pattern,
 - (g) said strip adjacent edges having their contacting surfaces permanently adhered together in airtight relation. 15
2. A drinking straw comprising a helically wound single initially flat strip of sheet material that has been first crinkled then formed with a rib during the winding process so that the finished straw is a generally cylindrical tube having at least one helical rib extending outwardly from the surface of the straw and with a crinkled surface throughout. 20
3. A drinking straw of the character described comprising: 25

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- (a) a tubular body bendable throughout its entire length,
- (b) said body being formed of a strip of thin sheet material spirally wound with its edges over-lapped,
- (c) the over-lapped edges being sealed together in fluid tight relation,
- (d) said strip being composed of sheet material wrinkled over its complete length and width,
- (e) said strip-wrinkles being of a crumple type wrinkle, and extend generally lengthwise of the strip, and
- (f) reenforcing wrinkles extending spirally the entire length of the tube body.

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