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HOLED STIRRING STICK

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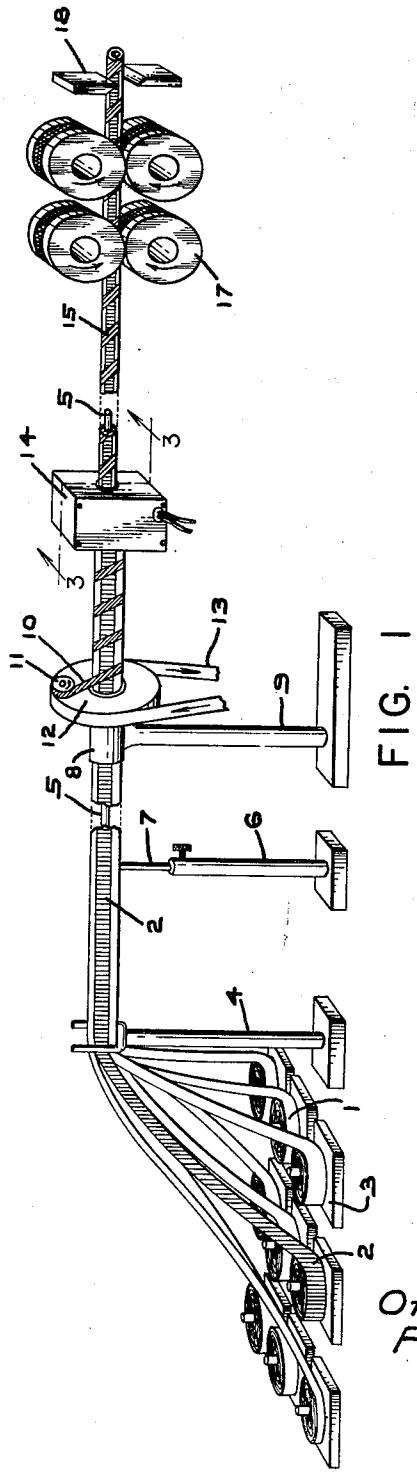


FIG. 1

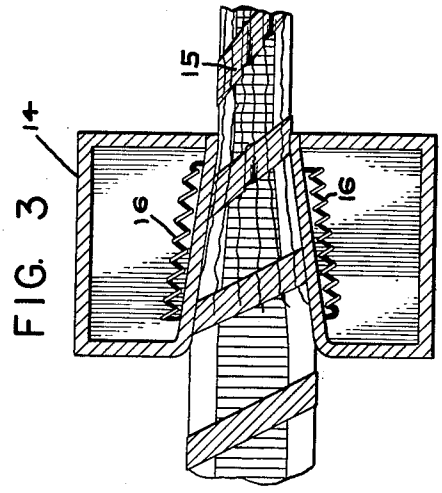


FIG. 3

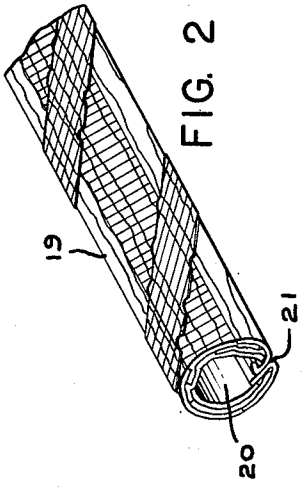


FIG. 2

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HOLED STIRRING STICK

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This invention relates to the rods particularly adapted for use in stirring light beverages and other drinks and commonly known as stirring rods. The inventive features relate both to the rod as an article of manufacture and to the method of making the rod.

More specifically the invention concerns a substantially rigid rod made from a plurality of strips of cellulosic or similar material which are bunched together without twisting the group and radially compressed and crushed into a compact mass, the group of strips still being untwisted and having random generally longitudinal folds. The strips are preferably plasticizable, or self-adhesive when heated, regenerated cellulose or regenerated cellulose hydrate being most readily available for treatment in this way. Preferably also, the heat is applied to the strips as they are radially compressed for especially effective sealing of the rod.

According to the preferred method, the rod is formed upon a wire or similar mandrel so that a central hole is formed therein extending the length of the rod, making a more rigid rod, as well as making possible a considerable saving of material and also expediting the forming of the rods and making for a desirable distribution and evenness of the strips. This holed rod would be quite difficult to make by a method involving twisting the bunched strips, since there would be a tendency for the strips to contract, gripping the wire mandrel.

A colored strip may be placed along the outside of the bunched strips so that the rod is formed with this strip extending straight along one side of the rod. Another strip of different color may be wound helically about the bunched strips prior to compression of the bunch further to provide an interesting and attractive design.

The helically wound strip also has utility in holding the bunched strips tightly together during the process of manufacture and in retaining the final product in compact form.

It is a particular advantage of the rod and the method of making it, that the bunched strips being untwisted, there is no tendency to unwind. In fact, the strips of the formed rod are under very little internal pressure tending to expand the rod, once it is formed according to the method of this invention.

A further advantage is that, the bunched strips being untwisted, a much smoother surfaced article is produced, and a neater one.

The holed rod, as well as being more rigid than a solid rod, is very useful as a sipping rod,

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or straw, at the same time serving as a stirring rod.

Other objects and advantages of the invention will be apparent from the following description and the accompanying drawings forming a part hereof and in which:

Figure 1 is a schematic view illustrating the method for forming rods according to this invention.

Figure 2 is an enlarged partial perspective view of a stirring rod made in accordance with the invention.

Figure 3 is an enlarged sectional view taken along the line 3—3 of Figure 1, showing the radial compression and heating steps in the formation of the rod.

Referring to the drawings by numerals, each of which is used to indicate the same or similar parts in the different figures, the invention provides a beverage stirring rod of regenerated cellulose, cellulose acetate or other cellulose esters, cellulose ethers or other equivalent cellulose material, or derivative, the terms cellulose material and cellulose derivative being used interchangeably as identifying cellulose compounds adapted to be made into homogeneous, non-fibrous, moisture proof, generally non-absorbent sheets which are flexible, hard, and resilient. Other materials than cellulose have similar properties and it is not intended to limit the invention to any specific material. The materials used in the manufacture of the rods described, to the best advantage should be self-adhesive when heated, but the use of adhesives with these and similar materials is known to those familiar with moisture proof wrappings.

Having particular reference to the drawing, the diagrammatic illustration of Figure 1 shows a pluarilty of rolls of uncolored strips 1 of cellulose material and a roll of a strip 2 of red colored cellulose material carried by spools 3.

These strips are continuously fed by means of any suitable guide means, indicated by numeral 4, onto a wire mandrel 5 about which the rod is preferably formed. This wire 5 is adjustably mounted on a support structure 6, the wire being bent downwardly at right angles and having its vertical leg 7 adjustably engaged by support 6. The strips of cellulose material feed around the vertical leg 7 of the wire, which thus tends to prevent twisting of the strips about each other or about the horizontally extending wire 5.

The strips then pass through bunching tube 8 and are gathered together somewhat more closely completely around wire 5, the wire ex-

tending centrally thereof. The tube is carried by any suitable support indicated by numeral 9.

A thin green strip 10 also of heat sealing cellulose material is shown mounted on a spool 11 and it is wound helically about the bunched strips by winding means 12 illustrated as rotatably mounted on the outside of the bunching tube 8. The winding means is driven by belt 13 moving in the direction indicated by the arrows. This green strip 10 may be wound tightly about the other strips to hold them straight, compactly bunched and untwisted.

It will be noted that red strip 2 may be fed on the outside of the other strips so as to form a straight continuous side stripe along the length of the bunched strips.

The bunched strips are then preferably passed simultaneously through a radially compressing die and heating chamber 14, Figure 3, to crinkle, solidly compact and crush and seal the strips together and to seal the helical strip to the rod, to form a substantially rigid continuous rod 15. The heating is indicated as being accomplished by means of electric heating wires 16 and the strips are preferably self-adhesive when heated. As seen in Figure 1, the wire 5 extends centrally through the die 14. It is best, of course, to draw the strips fairly rapidly through the die and off the wire to avoid any possibility of sticking thereto. This has been found to be possible in practice, since the bunched strips are untwisted and present a relatively smooth inner surface to the wire.

The reference numeral 17 indicates a suitable means for drawing the bunched strips through the die, illustrated as a plurality of opposed pairs of knurled rollers. The wire 5 ends after the final bunching and heating, before the rod is grasped by the drawing means. The continuous rod 15 is thereafter cut into desired lengths by any suitable means, such as knife 18.

Figure 2 illustrates, on a greatly enlarged scale, a portion of a stirring rod 19 constructed in accordance with this invention. The finished article as it actually appears to the eye is substantially even and neat, the red strip extending substantially straight and parallel along one side of the rod and the narrow green strip substantially uniformly and evenly winding about the rod. The hole 20 extends substantially centrally and evenly through the length of the rod, and its diameter may comprise a considerable portion of the outside diameter of the tube, to make the rod rigid, and allow its use as a "sipper." As shown at 21, the strips close around the leg 7 of wire 5, and overlap, and the contacting surfaces adhere because of the heat sealing nature of the material.

The word "crush" as used in this application, is used in the sense of, to press down or together so as to force out of shape, that is to crinkle and solidly compact the strips which are radially compressed as above described.

What is claimed as new and is desired to be secured by Letters Patent is:

1. The continuous process of making continuous sealed holed rods of circular cross-section from strips of sheet moisture proof self-sealing material, which comprises bunching a plurality of said strips into rod form about a wire, with the strips extending parallel to said wire, winding helically a further strip of sheet material tightly about the bunched strips, crushing and compressing said bunched strips to a substantially smaller diameter wherein the bunched strips have random generally longitudinal folds and heating the strips to seal the strips together and withdrawing the rod from the wire.

2. The continuous process of making integral, sealed holed rods from strips of thin moisture proof sheet material having self-adhesive properties, which comprise bunching a plurality of said strips into rod form about a wire, with the strips extending substantially parallel to said wire, winding helically a further strip of sheet material about the bunched strips, crushing and compressing said bunched strips to a substantially smaller diameter wherein the bunched strips have random generally longitudinal folds and heating the compressed strips to cause the strips to adhere to form a continuous sealed tube and withdrawing the rod from the wire.

3. The continuous process of making integral sealed holed rods from thin moisture proof sheet material which is self-adhesive when heated, said process comprising forming said material about a wire into rod form with overlapping surfaces, with the material substantially parallel to the wire, reducing the formed material in cross-section by crushing and compressing the overlapping surfaces thereof into tightly packed relation, imparting to the material random generally longitudinal folds and heating the formed material until the overlapping surfaces are caused to adhere together and withdrawing the rod from the wire.

4. The continuous process of making integral rods from thin moisture proof sheet material which is self-adhesive when heated, said process comprising forming said material into a rod, with overlapping surfaces, feeding the rod as formed through a restricted opening to crush the material and compress the rod radially, imparting to the material random generally longitudinal folds and simultaneously heating the rod, causing the overlapping surfaces to unite to form a sealed rod.

5. The continuous process of making sealed rods from thin moisture proof, heat sealing sheet material which comprises forming the material continuously into a rod with overlapping surfaces by bunching it into a plurality of parallel strands through an opening, feeding the rod forwardly through a more restricted opening to crush the material and radially compress the rod, imparting to the material random generally longitudinal folds and through a heating zone whereby the overlapping surfaces of the material are sealed.

6. The continuous process of making integral, sealed holed rods from strips of thin moisture proof, heat sealing sheet material, which comprises bunching a plurality of said strips into rod form about a wire, with the strips extending substantially parallel to said wire, and crushing and compressing said bunched strips to a substantially smaller cross-section, imparting to the material random generally longitudinal folds and joining their surfaces about the wire, and heating the rod to seal it together and withdrawing the rod from the wire.

7. The continuous process of making integral rods from strips of thin moisture proof adhesive material, said process comprising forming a plurality of said strips parallel into a rod, and radially crushing, crinkling and compressing the rod to a substantially smaller cross-section to compact the strips together and setting the adhesive to form a sealed rod.

8. The continuous process of making integral

rods from strips of thin moisture proof material plasticizable by heat, said process comprising forming a plurality of said strips parallel into a rod, and radially crushing the material and compressing the rod to a substantially smaller cross-section to compact the strips together, imparting to the strips random generally longitudinal folds and heating the rod to unite the strips into a sealed rod.

9. The continuous process of making rods from strips of thin moisture proof material which is self-adhesive when heated, said process comprising bunching said strips, parallel, into a rod, with overlapping surfaces, radially crushing the material and compressing the bunched strips to a smaller cross-section to compact them, imparting to the strips random generally longitudinal folds and heating the rod of strips to unite the overlapping surfaces of the strips to seal the strips into a permanent rod.

10. A rod adapted for use as a stirring rod composed of homogeneous thin moisture proof sheet material which is self-adhesive when heated, the rod being composed of a multiplicity of overlapping strips of the said sheet material bunched together and extending parallel longitudinally of the rod, the bunched strips being crushed compactly together with random generally longitudinal folds and having the adjacent surfaces of the crushed strips sealed by the self-adhesive properties of the material into a permanent rod.

11. A rod adapted for use as a stirring rod, composed solely of thin moisture proof sheet material which is self-adhesive when heated, the rod being composed of a multiplicity of overlapping longitudinally directed strips of the said sheet material extending substantially parallel longitudinally thereof crushed compactly together and having the adjacent surfaces of the crushed strips sealed by the self-adhesive properties of the material, the rod having a hole centrally longitudinally thereof.

12. A rod adapted for use as a stirring rod, composed of thin moisture proof sheet material, the rod being composed of a multiplicity of overlying strips of said sheet material extending parallel and substantially straight in a longitudinal direction and circumferentially crinkled and compressed and the adjacent surfaces of the crinkled material sealed together to form a compact rod.

13. A rod adapted for use as a stirring rod, composed of thin moisture proof material, the rod being composed of a multiplicity of overlying strips of said sheet material extending parallel and substantially straight in a longitudinal direction and crushed together, the strips having random generally longitudinal folds, the adjacent surfaces of the crushed strips being sealed together to form a compact rod, and having a further strip of said sheet material extending helically along the outer surface of said straight extending strips.

14. A rod for use as a stirring rod, comprising a smooth, hard, non-fibrous, resilient, thin sheet material in strip form and homogeneous throughout, of moisture-proof cellulose derivative, said strip material being grouped together with overlapping surfaces, and being crushed together, the strips having random generally longitudinal folds, the adjacent surfaces of the crushed strips being sealed together, the strips extending substantially straight longitudinally of the rod.

15. A rod for use as a stirring rod composed of a multiplicity of strips of thin sheet material which is substantially moistureproof extending in a longitudinal direction with overlapping surfaces crushed compactly together to form a rod and having moistureproof adhesive extending throughout the area of adjacent strips holding the strips tightly together.

16. A rod adapted for use as a stirring rod and composed of a multiplicity of strips of thin sheet material which is substantially moisture-proof and self adhesive when heated, the strips extending substantially parallel to each other in the rod and being crushed and sealed together throughout the adjacent area of the strips, the strips having random generally longitudinal folds and a further strip extending around the rod in a helix.

17. A rod adapted for use as a stirring rod and composed of a multiplicity of strips of thin sheet material, the material being substantially moisture-proof and self-adhesived when heated, the strips extending substantially parallel in the rod and overlapping one another, the strips being crushed and sealed together throughout their adjacent area and having random generally longitudinal folds and a further strip extending around the rod in a helix.

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