This invention relates to a drinking straw and more particularly to one which adds flavoring material to the liquid being drawn through it. Various types of flavored drinking straws exist in the prior art and generally they involve the use of an insert of some sort comprised of an absorbent material impregnated with flavoring material which will be soluble in the fluid being drawn through the straw. One such prior art structure involves the use of a rectangular insert which is placed centrally within the straw by a special method of manufacture while flavor normal circular cross-section of the straw is compressed into oval shape to receive the insert which is slightly wider than the normal diameter of the straw. After insertion the compression on the straw is released and the insert held firmly in place.

This and other types of prior art structures have required the development of special manufacturing techniques which have required somewhat more cumbersome and complex methods of manufacture being added to the standard technique employed for the manufacture of ordinary drinking straws.

An object of the present invention is to provide a flavor straw which can be made on existing standard equipment without the addition of special techniques.

Another object is to provide a flavor straw which has no obstruction to liquid flow in its interior.

Another object is to provide a flavor straw which requires no washing, i.e. covering with paraffin, after manufacture as is required now for all paper drinking straws. A further object is to provide a flavor straw which exposes maximum surface area of the flavor-containing material to the liquid being flavored.

Other objects and features of the invention will become apparent in the following description and claims and in the drawings in which:

Fig. 1 is an enlarged longitudinal partial section of a straw embodying the principles of the present invention;

Fig. 2 is a schematic diagram showing the arrangement of the materials of manufacture.

The flavor straw of the present invention is shown in Fig. 1 and designated generally by the reference numeral 10. It is a laminated structure having three closely fitting coaxial tubular members, the innermost layer 11 comprised of any suitable well known absorbent material, usually of cellulose or the like, and which is impregnated in the usual manner with a soluble flavor substance. Directly surrounding inner layer 11 is an intermediate layer 12 of wet-strength paper. The wet-strength paper and absorbent layer are held together by friction and the somewhat sticky consistency of the flavoring material, without use of any other adhesive. The outer tubular layer 13 is cellulose acetate or the like, i.e. a synthetic impervious film material, and is joined to the wet-strength paper layer and itself by a suitable adhesive 14. The wet-strength paper layer 12 is employed to enhance the mechanical strength of the straw and the cellulose is used to give a better appearance, even better wet-strength characteristics, and greater durability during handling and use.

The instant flavor straw can be manufactured on standard drinking straw manufacturing equipment. As is well known, standard drinking straws are manufactured by machines which spiral wind paper strip onto tapes about a mandrel. In Fig. 2, schematically is shown the use of such standard technique for the present invention. Three separate tapes 15, 16 and 17 are fed to the mandrel 18 to provide the three layer structure. Tape 15 is the impregnated absorbent material, tape 16 is the wet-strength paper and tape 17 is the cellulose. Tape 15 can be either impregnated prior to being supplied in roll form to the machine, can be impregnated at some intermediate point between the roll and the mandrel, or can be impregnated after the three layer straw is completely fabricated by a dipping process or the like. The cellulose tape 17 can be coated with the required adhesive material by any well known technique such as adhesive roller 20 as the tape is being fed to the mandrel.

Thus the three layer straw 19 is fabricated by the simultaneous winding of the three tapes and a novel straw is provided having the above-described characteristics. Not only is this straw manufactured on standard machinery but also the cost of manufacture is considerably lower than that of flavor straws in the prior art. A durable structure is provided which has a free flow unobstructed inner bore.

While one embodiment of the invention has been shown and described it is to be understood that certain changes and additions can be made by those skilled in the art without departing from the scope of the invention. For example, the omission of the intermediate layer of wet-strength paper, while increasing the thickness of the outer cellulose layer for reinforcing purposes shall not constitute a departure from the scope of the invention.

What is claimed is:

1. A flavor straw comprised of a plurality of coaxial tubular members constituting a closely fitting laminated structure, the innermost tubular member thereof composed of absorbent material impregnated with a soluble flavor substance, an intermediate member thereof composed of wet-strength paper, and the outermost member thereof composed of a synthetic impervious film, said outermost member joined to said intermediate member and itself by an adhesive.

2. A flavor straw comprised of a plurality of coaxial tubular members constituting a closely fitting laminated structure, the innermost tubular member thereof composed of absorbent material impregnated with a soluble flavor substance and adhered to said structure without use of another adhesive, an intermediate reinforcing member thereof composed of wet-strength paper, and the outermost member thereof composed of a synthetic impervious film, said outermost member joined to said intermediate member and itself by an adhesive.

3. A flavor straw comprised of a plurality of coaxial tubular members constituting a closely fitting laminated structure, the innermost tubular member thereof composed of absorbent material impregnated with a soluble flavor substance and adhered to said structure without use of another adhesive, an intermediate reinforcing member thereof composed of waxed wet-strength paper, and the outermost member thereof composed of a synthetic impervious film, said outermost member joined to said intermediate member and itself by an adhesive.

4. A flavor straw comprised of a plurality of coaxial tubular members constituting a closely fitting laminated structure, the innermost tubular member thereof com-
posed of absorbent material impregnated with a soluble flavor substance and adhered to said structure without use of another adhesive, an intermediate reinforcing member thereof composed of wet-strength paper, and the outermost member thereof composed of a synthetic impervious film selected from the class consisting of cellophane and cellulose acetate, said outermost member joined to said intermediate member and itself by an adhesive.

5. A flavor straw comprised of three coaxial tubular members, the innermost tubular member thereof composed of absorbent material impregnated with a soluble flavor substance and adhered to the intermediate member without use of another adhesive, the intermediate reinforcing member thereof composed of wet-strength paper, and the outermost member thereof composed of a synthetic impervious film selected from the class consisting of cellophane and cellulose acetate, said outermost member joined to said intermediate member and itself by an adhesive.

6. A flavor straw comprised of three coaxial spiral wound tubular members, the innermost tubular member thereof composed of absorbent material impregnated with a soluble flavor substance and adhered to the intermediate member without use of another adhesive, the intermediate reinforcing member thereof composed of a synthetic impervious film selected from the class consisting of cellophane and cellulose acetate, said outermost member joined to said intermediate member and itself by an adhesive.

7. A flavor straw comprised of three coaxial spiral wound tubular members, the innermost tubular member thereof composed of absorbent material impregnated with a soluble flavor substance and adhered to the intermediate member without use of another adhesive, the intermediate reinforcing member thereof composed of a synthetic impervious film, said outermost member joined to said intermediate member and itself by an adhesive.

8. A flavor straw comprised of three coaxial spiral wound tubular members, the innermost tubular member thereof composed of absorbent material impregnated with a soluble flavor substance and adhered to the intermediate member without use of another adhesive, the intermediate reinforcing member thereof composed of wet-strength paper, and the outermost member thereof composed of cellophane, said outermost member joined to said intermediate member and itself by an adhesive.

9. A flavor straw comprised of three coaxial spiral wound tubular members, the innermost tubular member thereof composed of absorbent material impregnated with a soluble flavor substance and adhered to the intermediate member without use of another adhesive, the intermediate reinforcing member thereof composed of wet-strength paper, and the outermost member thereof composed of cellulose acetate, said outermost member joined to said intermediate member and itself by an adhesive.

10. The method of fabricating a drinking straw comprising spiral winding a strip of absorbent material to form an elongated tubular member, spiral winding a strip of wet-strength paper on the first said strip to form a closely fitting second tubular member thereon, and spiral winding a strip of a synthetic impervious film material coated with an adhesive, on said second tubular member.

11. The method of fabricating a drinking straw comprising spiral winding a strip of absorbent material impregnated with a soluble flavoring substance to form an elongated tubular member, spiral winding a strip of wet-strength paper on the first said strip to form a closely fitting second tubular member thereon, and spiral winding a strip of a synthetic impervious film material selected from the class consisting of cellophane and cellulose acetate and coated with an adhesive, on said second tubular member.

12. The method of fabricating a drinking straw comprising spiral winding a strip of absorbent material to form an elongated tubular member, and spiral winding a strip of cellophane, coated with an adhesive, on said tubular member and impregnating said absorbent material with a soluble flavoring substance.

13. The method of fabricating a drinking straw comprising spiral winding a strip of absorbent material to form an elongated tubular member, spiral winding a strip of wet-strength paper on the first said strip to form a closely fitting second tubular member thereon, and spiral winding a strip of cellophane, coated with an adhesive, on said second tubular member and impregnating said absorbent material with a soluble flavoring substance.

14. The method of fabricating a drinking straw which comprises carrying out the steps of claim 11 simultaneously.

No references cited.