United States Patent

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[54] POLY(ARYLENE SULFIDE) SMOKING ELEMENT

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[52] **U.S. Cl.** **131/191,** 131/220, 131/230

[51] **Int. Cl.**.....**A24f 01/18,** A24f 01/28, A24f 01/32

[58] **Field of Search**.....131/230, 220, 204, 219, 226, 131/227, 191, 172

[56] **References Cited**

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Fairholt, F. W. Tobacco: Its History & Associations. Chatto and Windus. London. 1876, pgs. 176– 178 cited.

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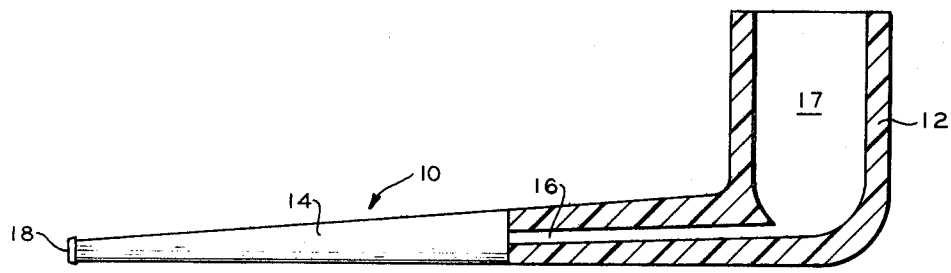
[57] **ABSTRACT**

A smoking element is made partially or wholly of a poly(arylene sulfide) composition. The ease of molding such a composition allows molding said element in a conventional shape for a tobacco pipe or in a cigar shape.

10 Claims, 4 Drawing Figures



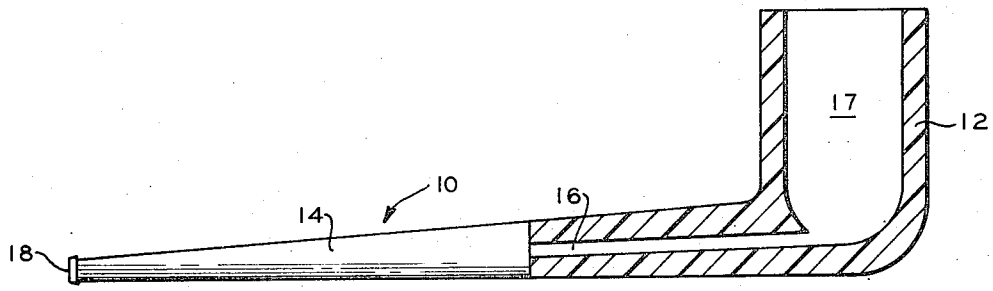


FIG. 1

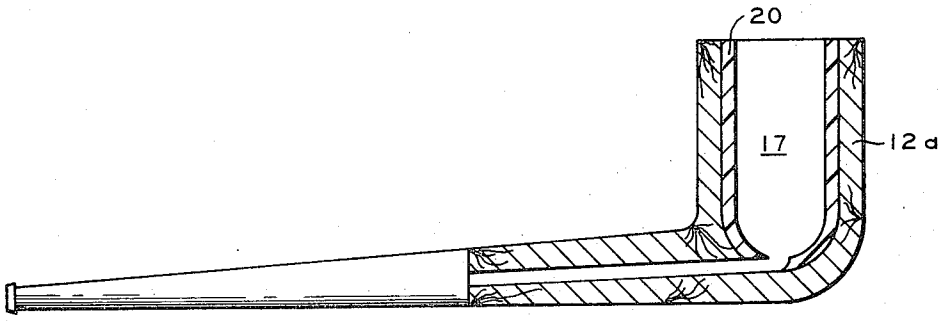


FIG. 2

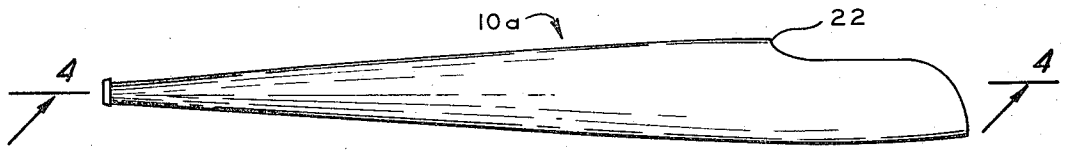


FIG. 3

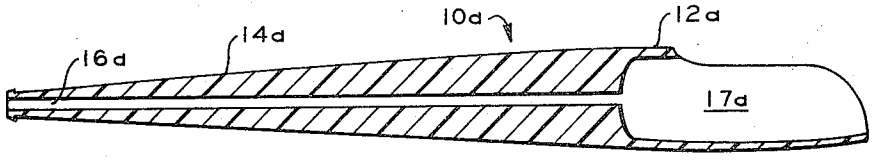


FIG. 4

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POLY(ARYLENE SULFIDE) SMOKING ELEMENT

BACKGROUND OF THE INVENTION

This invention relates to smoking elements such as tobacco pipes and/or liners therefor.

There are numerous desirable characteristics for a smoking pipe. First, it should allow the tobacco to burn at a low temperature so as to provide a cool smoke. It should be unbreakable and attractive. Further, it should require little or no breaking in. And in addition to all of the above, be low in cost. While smoking pipes are comparatively simple articles and have long been in use, full attainment of all of these qualities in a single material has eluded those skilled in the art.

SUMMARY OF THE INVENTION

It is an object of this invention to provide a smoking element which is easily fabricated; it is a further object of this invention to provide a smoking pipe which is attractive, easily cleaned, virtually unbreakable and which requires no break in; it is a further object of this invention to provide a smoking pipe which smokes cool; and it is yet a further object of this invention to provide a smoking pipe having a cigar shape.

In accordance with this invention, at least the inner surface of the bowl of a smoking element is made of a poly(arylene sulfide) composition.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, forming a part hereof, wherein like reference characters denote like parts in the various views, FIG. **1** is a view partially in section of a smoking pipe in accordance with one embodiment of the invention; FIG. **2** is a view also partially in section of another embodiment of the invention; FIG. **3** is a side elevation of an alternative embodiment of the invention; and FIG. **4** is a sectional along lines **4**—**4** of FIG. **3**.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

By poly(arylene sulfide) is meant polymer such as is disclosed in Edmonds, Jr. et al., U.S. Pat. No. 3,354,129, the disclosure of which is hereby incorporated by reference. The preferred material for the invention is poly(phenylene sulfide). These polymers can contain conventional additives such as pigments to impart the desired color. In many embodiments, it is preferred to use a reinforced poly(arylene sulfide) composition, for instance, a 50—50 mixture of poly(arylene sulfide) with asbestos, paperbestos, or glass.

An essential feature of this invention is the ease with which the poly(arylene sulfide) composition can be molded to form the smoking element of the invention. Preferably, they are made by injection molding, thus allowing low cost fabrication of the entire smoking element, including the bowl portion coming in contact with the burning tobacco. While the smoking pipe will generally be made in two pieces, with a poly(arylene sulfide) bowl and a separate stem, made either of poly(arylene sulfide) or some conventional material such as hard rubber, it is possible to fabricate the entire pipe as a one-piece integral unit by injection molding, utilizing separate core means for the bowl and smoke conduit. The poly(arylene sulfide) smoking element can also be made by milling a cured block or compression molding a powder. The final product can be buffed to impart a high luster, if desired.

It is also within the scope of the invention to fabricate the entire pipe from conventional materials and utilize only a poly(arylene sulfide) liner. Even in this embodiment, the entire pipe can be made inexpensively since the other elements can also be made of relatively inexpensive and easily fabricated materials. Thus, with just the liner made of poly(arylene sulfide), the advantages of the invention, low cost fabrication, cool smoking, and easy cleaning, are achieved. While it is not understood why the poly(arylene sulfide) pipe smokes cooler, this effect is achieved either with a solid bowl or with a liner, as, of course, is the easy cleaning feature. Further in this regard, it is noted that since the poly(arylene sulfide) does not burn or decompose at the temperatures encountered, the inner surface remains smooth and easily cleaned.

Referring now to the FIGURES, particularly FIG. **1**, there is shown a smoking element **10** in the form of a pipe having a bowl portion **12** made of a poly(arylene sulfide) composition and a separate stem portion **14** made of hard rubber. Smoke passage **16** provides communication between cavity **17** and the tip **18** of the stem.

FIG. **2** shows a pipe similar to that of FIG. **1** having a bowl **12***a* made of conventional wood materials with a liner **20** of poly(arylene sulfide).

FIGS. **3** and **4** show a cigar shape for a smoking element made possible by the fact that poly(arylene sulfide) is moldable. In this embodiment, there is shown a smoking element **10***a* having a stem portion **14***a* which is integral with bowl portion **12***a*. Tobacco is packed into cavity **17***a*. Bowl **12***a* is a concentric longitudinal extension of stem **14***a* with a recessed upper wall **22**. This element can be injection molded utilizing separate core means for forming cavity **17***a* and smoke passage **16***a*.

EXAMPLE

A pipe bowl of the general shape shown in FIGS. **1** and **2** was milled from a cured block of a poly(phenylene sulfide) composition comprising 50 percent poly(phenylene sulfide) and 50 percent paperbestos, a purified form of long fiber asbestos, and a stem made of hard rubber. The pipe was smoked and found to smoke cool, with an absence of tongue bite. The bowl cleaned easily after use.

EXAMPLE II

A liner just under ⅛-inch thick such as is shown in FIG. **2** was made from an identical poly(phenylene sulfide) composition and placed in a conventional pipe. The resulting pipe was smoked over a period of several weeks and found to smoke cool and be easily cleaned.

EXAMPLE III

A smoking element of the shape shown in FIGS. **3** and **4** was milled from an identical poly(phenylene sulfide) block and found to smoke cool and be easily cleaned.

While this invention has been described in detail for the purpose of illustration, it is not to be construed as limited thereby, but is intended to cover all changes and modifications within the spirit and scope thereof.

I claim:

1. A tobacco smoking pipe having a hollow bowl and stem portions, at least the inner portion of said bowl portion comprising a poly(arylene sulfide) composition.

2. An article according to claim 1 wherein said bowl is solid poly(arylene sulfide).

3. An article according to claim 2 wherein said poly(arylene sulfide) is poly(phenylene sulfide).

4. An article according to claim 1 wherein said bowl has an inner liner of poly(arylene sulfide).

5. An article according to claim 1 wherein said poly(arylene sulfide) contains a reinforcing additive selected from the group consisting of asbestos, paperbestos, and glass.

6. An article according to claim 1 wherein said bowl and stem are an integral poly(arylene sulfide) molding.

7. An article according to claim 1 wherein said bowl is an essentially concentric longitudinal extension of said stem and wherein said bowl has a recessed upper wall.

8. An article according to claim 1 wherein said poly(arylene sulfide) composition is cured poly(phenylene sulfide) containing 50 percent paperbestos.

9. An article according to claim 7 wherein said bowl and stem are an integral molding.

10. An article according to claim 1 wherein said poly(arylene sulfide) is a high molecular weight, high melting thermoplastic.

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