BIT CONSTRUCTION FOR SMOKING PIPES

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Filed: July 21, 1972

Appl. No.: 273,759

U.S. Cl. .......... 131/212 A, 131/218, 131/225, 131/227, 285/133 R

Int. Cl. ..................... A24F 01/16

Field of Search .......... 131/212 A, 213, 218, 131/227, 225; 285/22, 133 R

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ABSTRACT

A bit member having a smoke duct therethrough for use in combination with a smoking pipe including a bowl, a tubular stem for connecting the bowl to the bit and a receptacle-like retroverted-flow filter associated with the bit and disposed within the stem. The bit member comprises a generally tubular first portion adapted to fit telescopically within the stem, a generally tubular second portion adapted to fit telescopically within the filter, the second portion being coaxial with said first portion and extending forwardly from the first portion, the outer surface of the second portion being provided with a series of substantially uniform projections circumferentially disposed thereon, the outer surface of the second portion being further provided with stop members for limiting the axial movement of the filter and the second portion, and a mouthpiece-like third portion extending rearwardly from the first portion.

The bit member first portion is also provided with a transverse O-ring retaining recess and a plurality of protuberances on each side of the recess.

14 Claims, 8 Drawing Figures
BIT CONSTRUCTION FOR SMOKING PIPES

SUMMARY OF THE INVENTION

This invention pertains to a bit member for use generally with a retroverted-flow filter and pipe similar to that disclosed in U.S. Pat. 3,170,468. In particular, the invention relates to the construction of that portion of the bit member which serves to retain the aforementioned retroverted-flow filter about the bit member and also to means on the bit member for assuring a tight fit within the pipe stem.

HISTORICAL BACKGROUND AND OBJECTS

The prior art dealing with retroverted-flow pipe bits and stems has proven unsatisfactory with regard to ease in attaching the filter to either the bit member or the pipe stem. In the case of a bit supported retroverted-flow filter, it is necessary that the filter cap be supported about the bit member and spaced therefrom both at the ends and around the periphery to allow proper circulation of smoke. The prior art devices have sought to achieve this proper spacing by means of multi-element assemblies associated with either the stem or the bit member. This creates the necessity that the individual components of the assembly be properly aligned before the filtering system will function efficiently. Such a design is unsatisfactory.

Furthermore, in the case of a paper or cellulose filter, it is especially important that the filter be attached without its tearing or otherwise being deformed. It is, therefore, an object of this invention to provide a bit member of unitary construction thereby eliminating the necessity for assembling and disassembling individual filter support components.

Another object of this invention is to provide a bit of unitary construction which facilitates cleaning.

A further object of this invention is to provide a bit member adapted for easy insertion into a throwaway filter.

A still further object of this invention is to provide a bit member which will securely retain a throwaway filter.

A still further object of this invention is to provide a bit member which permits maximum circulation of smoke by providing means to space the filter from the bit member utilizing a minimum of support points.

Still another object of this invention is to provide a bit member which will not rock within the pipe stem.

These and other objects of this invention will be apparent from the following description and claims.

In the accompanying drawings which illustrate this invention:

FIG. 1 is a partially cut away side elevational view showing the bit member, filter and pipe in assembled form;

FIG. 2 is an exploded perspective view of the bit member and filter;

FIG. 3 is a sectional view of FIG. 1 taken about line 3-3 and viewed in the direction of the arrows;

FIG. 4 is a sectional view of FIG. 1 taken about line 4-4 and viewed in the direction of the arrows;

FIG. 5 is a cross-sectional view of the bit member;

FIG. 6 is a cross-sectional view of the bit member shown in FIG. 5 taken along line 6-6 and viewed in the direction of the arrows;

FIG. 7 is a left end view of the bit member shown in FIG. 5;

FIG. 8 is a right end view of the bit member shown in FIG. 5.

FIG. 1 shows a partially cut away view of a smoking pipe incorporating the bit member which is the subject of this invention. Pipe bowl 2 is secured to stem 4 by means of a ducted fitting 6. Stem 4 is closed at one end by cap member 8 which comprises a plug portion 10 having a transverse O-ring retaining recess 12 therein and an end portion 14. Disposed within recess 12 is an O-ring 16 made of rubber, resilient plastic or the like. When plug portion 10 is disposed within stem 4, O-ring 16 bears outwardly against the inner surface 17 of stem 4 thereby providing a seal. Protuberances 18 serve to prevent cap member 8 from rocking in stem 4 about O-ring 16.

Bit member B is disposed within stem 4 and a retroverted-flow filter F is secured over forward portion 20. As best shown in FIGS. 5 and 6, bit member B may be of unitary construction and includes a smoke duct 22 therethrough. It includes a mouthpiece 24, a central portion 26 and a forward portion 20.

Forward portion 20 is generally tubular and has a series of tapered projections 28 circumferentially disposed on its outer surface 30. Projections 28 may be ridges which run longitudinally and taper gradually toward the forward end of portion 20. The purpose of the gradual slope of ridges 28 is to guide and flare the filter F as the forward portion 20 of bit member B is being inserted therein. Ridges 28 may also be constructed so as to taper sharply at rear surfaces 34 so as to frictionally retain filter F about forward portion 20.

Forward portion 30 is further provided with a series of projections 36 circumferentially disposed thereon rearward of projections 28. Projections 36 may also be in the form of longitudinal ridges and are preferably aligned with projections 28 as shown in FIG. 2. In a preferred form of the invention, the height of ridges 36 above surface 30 is less than the height of ridges 28. When the bit member B is constructed in this fashion, filter F will be flared as it passes over ridges 28 and will seat on ridges 36 without catching. A further advantage to this construction lies in the fact that ridges 28, due to their height and the sharp taper of rear surfaces 34, serve to frictionally retain filter F about portion 20.

To prevent filter F from being slid over portion 20 to such an extent that its inner surface 38 (See FIG. 1) abuts the forward end of portion 20 and its rim 40 abuts shoulder 42 thereby preventing proper smoke circulation, ridges 36 have a step or stop 44 therein. As filter F is slid over portion 20, rim 40 will engage steps 44 and a gap will be formed between filter F and flange 42 to permit the smoke to curl around rim 40 and travel along surface 30 in a forward direction.

When portion 20 of bit member B is inserted in filter F, ridges 28 and 36 serve to space filter F from the outer surface 30 of portion 20 thereby permitting the smoke to follow the path shown by the arrows in FIG. 1. While projections 28 and 36 have been shown as longitudinal ribs, it would be obvious to employ projections having various other configurations.

Central portion 26 is also generally tubular and is integral with both forward portion 20 and mouthpiece 24. Central portion 26 also has an outer diameter which is smaller than the outer diameter of the forward portion 46 of mouthpiece 24 thereby providing a shoulder 48 which abuts the rear rim 49 of stem 4.
Bit member B is provided with a transverse O-ring retaining recess 50 which circumscribes central portion 26. An O-ring 52 (See FIGS. 1 and 2) is retained therein for the purposes of sealing the interior of stem 4 at the juncture of stem 4 and bit member B. Protuberances 54 on central portion 26, which are disposed on each side of recess 50 serve to prevent bit B from rocking within stem 4 about O-ring 52 which projects beyond recess 50. Each series of protuberances 54, which are circumferentially disposed on central portion 26, is preferably aligned with the other.

While any number of projections 28, 36 and 54 may be included, at least three projections in each circumferential series is desirable.

While this invention has been described as having a preferred design, it will be understood that it is capable of further modification. This application is, therefore, intended to cover any variations, uses or adaptations of the invention following the general principles of this invention and including such departures from the present disclosure as may appear within known or customary practice in the art to which the invention pertains, and as may be applied to the essential features hereinbefore set forth and fall within the scope of this invention or the limits of the appended claims.

Having thus described my invention, what I claim is:

1. A bit member having a smoke duct therethrough for use in combination with a smoking pipe including a bowl mounted on the forward end thereof, a tubular stem for connecting the bowl to said bit and a removable receptacle-like retroverted-flow filter adapted to be positioned over said bit and disposed within the stem, said bit member comprising:
   a. a generally tubular first portion fitting telescopically within the stem,
   b. a generally tubular second portion fitting telescopically and removably within the filter,
   c. said second portion being coaxial with said first portion and extending forwardly from said first portion,
   d. said first portion cooperating with said second portion to form an annular shoulder,
   e. means on said shoulder for spacing the filter forwardly from said shoulder,
   f. the outer surface of said second portion being provided with a series of substantially uniform first projections circumferentially disposed thereon,
   g. the outer surface of said second portion being provided with a series of substantially uniform second projections circumferentially disposed thereon intermediate between said first projections and said first portion,
   h. a mouthpiece-like third portion extending rearwardly from said first portion.

2. The bit member of claim 1 and wherein said means for spacing the filter from said shoulder includes at least one projection on said shoulder.

3. The bit member of claim 1 and wherein said means for spacing the filter from said shoulder includes a step on at least one of said second projections.

4. A bit member as in claim 1 and wherein the height of said first uniform projections taper in a forward direction so as to guide and flare the filter during insertion.

5. A bit member as in claim 1 and wherein said projections are longitudinal ridges.

6. A bit member as in claim 1 and wherein said series of first projections are spaced from said series of second projections and aligned with said series of second projections.

7. A bit member as in claim 1 and wherein the outer diameter of said second portion is smaller than the outer diameter of said first portion so as to form said shoulder.

8. A bit member as in claim 1 and wherein each of said series of projections includes at least three projections spaced equidistantly from each other.

9. A bit member as in claim 1 and wherein said bit member is unitary.

10. A bit member having a smoke duct therethrough for use in combination with a smoking pipe including a bowl mounted on the forward end thereof, a tubular stem for connecting the bowl to said bit and a receptacle-like retroverted-flow filter associated with said bit and disposed within the stem, said bit member comprising:
   a. a generally tubular first portion fitting telescopically within the stem,
   b. a generally tubular second portion fitting telescopically within the filter,
   c. said second portion being coaxial with said first portion and extending forwardly from said first portion,
   d. the outer surface of said second portion being provided with a series of substantially uniform first projections circumferentially disposed thereon,
   e. the outer surface of said second portion being provided with a series of substantially uniform second projections circumferentially disposed thereon intermediate between said first projections and said first portion,
   f. the height of said first projections being greater than the height of said second projections,
   g. the outer surface of said second portion being provided with stop means for limiting the axial movement of the filter on said second portion, and
   h. a mouthpiece-like third portion extending rearwardly from said first portion.

11. A bit member as in claim 11 and wherein said first projections taper also in a forward and a rearward direction so as to form a peak.

12. A bit member as in claim 11 and wherein said first projections taper gradually in said forward direction and sharply in said rearward direction.

13. A bit member having a smoke duct therethrough for use in combination with a smoking pipe including a bowl mounted on the forward end thereof, a tubular stem for connecting the bowl to said bit and a receptacle-like retroverted-flow filter associated with said bit and disposed within the stem, said bit member comprising:
   a. a generally tubular first portion fitting telescopically within the stem,
   b. a generally tubular second portion fitting telescopically within the filter,
   c. said second portion being coaxial with said first portion and extending forwardly from said first portion,
   d. the outer surface of said second portion being provided with a series of substantially uniform first projections circumferentially disposed thereon,
   e. the outer surface of said second portion being provided with a series of substantially uniform second projections circumferentially disposed thereon.
projections circumferentially disposed thereon intermediate said first projections and said first portion,
f. the outer surface of said second portion being provided with stop means for limiting the axial movement of the filter on said second portion,
g. a mouthpiece-like third portion extending rearwardly from said first portion,
h. means providing a transverse O-ring retaining recess circumscribing said first portion, and
i. a plurality of substantially uniform protuberances positioned on each side of said recess means.
14. A bit member as in claim 13 and wherein said first portion is provided with at least three equidistantly spaced protuberances on each side of said recess means.

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