

TAR REMOVING CIGARETTE HOLDERBACKGROUND OF THE INVENTION

The present invention relates to a tar removing cigarette holder for smoking.

5 It is well known to provide a cigarette holder with a tar removal cartridge which eliminates tar constituents from tobacco smoke or a tar elimination cigarette holder which has a directly built in tar removal construction. An impact type tar removal
10 construction is known, wherein tobacco smoke impacts at a high speed on a wall so that the tar constituents within the smoke are made to adhere onto the surface of the wall and are thus removed from the smoke. Various tar removing structures according to this principle
15 have also been proposed. However, the problem still remains with regard to how the smoke impacting and tar removing structure is constructed more effectively at lower costs of manufacture.

SUMMARY OF THE INVENTION

20 The object of the present invention is to provide a tar removal cigarette holder having high tar removing performance and yet has highly good production characteristics with few assembly problems, whereby a stable and high product quality can be achieved at
25 low manufacturing costs.

 According to the present invention there is provided a tar removing cigarette holder comprising a body having a cylindrical bore arranged to serve at a first end portion thereof as a cigarette
30 attachment aperture and a cup portion located in said bore and supported from said body via a plurality of bridge portions formed to be integral with said body and said

cup portion, said cup portion having a cylindrical wall portion defining a first annular space with a wall surface of said bore and an end wall portion which closes a first axial end of said cylindrical wall portion thereof, 5 a second axial end of said cylindrical wall portion opposite to said first axial end thereof being open toward said cigarette attachment aperture with at least one partial cut-away being formed at an edge portion of the open end of said cylindrical wall portion, said 10 end wall portion of said cup portion having a projection formed to be integral therewith so as to extend in an axial direction opposite to said open end of said cylindrical wall portion, a mouth piece member attached to said body so as to communicate with said bore at 15 a second end portion thereof opposite to said first end portion, a partition member inserted into said bore, said partition member having an annular disk portion tightly engaged with the wall surface of said bore so as to close the open end of said cup portion and a central 20 tubular projection inserted into said cup portion with a free end thereof spaced from said end wall portion of said cup portion and defining a second annular space with said cylindrical wall portion of said cup portion, said first and second annular spaces being in 25 communication with one another through said at least one partial cut-away of said cup portion, and a filter element inserted into said second end portion of said bore, said projection restricting insertion of said 30 predetermined volume of a tar accumulation chamber in said bore between said cup portion and said filter element.

BRIEF DESCRIPTION OF THE DRAWING

The present invention will now be described in detail in terms of an exemplary embodiment with reference to the attached drawings, wherein:

5 Fig. 1 is a longitudinal sectional view of an embodiment of a tar removal cigarette holder according to the present invention;

 Fig. 2 is a sectional view along line II-II in Fig. 1; and

10 Fig. 3 is a sectional view along line III-III in Fig. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

 In these drawings, 10 is a body of a generally cylindrical construction which has a cylindrical bore
15 14 which serves at one end thereof as a cigarette attachment aperture 12, and 30 is a mouthpiece member attached to the other end of the body 10 and having a mouthpiece opening 32 at the end remote from the end portion connected to the body 10.

20 The body 10 is formed, as located in the bore 14, with a cup portion 22 as integrally formed therewith to have an annular wall portion 18 which defines an annular space 16 with the inner surface 14 of the bore and an end wall portion 20 which closes the end portion
25 of this cylindrical wall portion to form the cup portion opened toward the cigarette attachment aperture 12. The wall portion 18 is connected with the cylindrical portion of the body 10

by a pair of bridge portions 24 which extend radially across the annular space 16.

The cylindrical wall portion 18 is partially cut away at its open edge portions as cut way 26, as arranged in the shown embodiment with a circumferential spacing of 180 degrees. Further, a leg portion 28 is provided to extend from the end wall portion 20 in the shown embodiment.

The body 10 having the cup portion 22 formed integrally therein is made completely by a single operation of synthetic resin injection molding using an injection mold which is split into two parts to the left and the right as seen in Fig. 1 and joining at the bridge portions 24. The cut away portions 26 are also formed at the same time.

A partition member 40 made of rubber or a soft synthetic resin is inserted into the bore 14 passed the cigarette insertion aperture 12 with its disk portion 41 as engaged at its annular flange portion 45. The disk portion 41 adjoins the end rim of the annular wall portion 18 and closes the open end of the cup portion 22, while defining orifice passages at the cut away portions 26. The partition member 40 has a central tubular projection 43 which has a smoke conducting passage 42 and ends as spaced from the end wall portion 20 of the cup portion 20 and defines an annular space with the annular wall portion 18 of the cup portion 22. This annular space operates to hold a static pressure of the smoke for ejecting it through the orifice passages.

Within the end portion of the bore 14 opposite to the cigarette attachment aperture 12, there is inserted a fibrous or porous filter element 50 having a cylindrical surface layer 51. The filter element 50 abuts against the projection 28 of the cup portion 22, whereby the amount of insertion of the filter element 50 into the bore 14 is restricted, and thereby a tar collection chamber A of a sufficient volume is provided between the cut away portions 26 and the filter element 50.

The body 10 and the mouthpiece member 30 are arranged so that one fits removably inside the other, and they are mutually rotatable, and by selectively aligning an air intake concavity 11 provided at a portion of the outer periphery of the body 10 with an

air intake groove 34 formed on the inner periphery of the mouthpiece member 30, an addition of air to the smoke within the cigarette holder is effected.

To use a tar removal cigarette holder of the above
5 construction, a cigarette is inserted by one end in the cigarette attachment aperture 12, a light is applied to the other end of the cigarette and a suction force is applied to the mouthpiece 32 of the mouthpiece member 30. Thus the smoke of the cigarette passes
10 through the smoke through passage 42 to the inside of the annular wall 18 of the cup portion 20, and then flows through the orifice passages provided by the cut away portions 26 into the annular space 16. At this point, by the throttling effect by the orifice
15 passages the flow speed of the smoke is increased, and the flow hits the inner surface of the bore 14 of the body 10 at high speed. The smoke here undergoes an immediate change of direction, and
20 flows axially along the annular space 16 toward the mouthpiece member 30, while the tar constituents in the smoke impact on the inner surface of the bore 14 because of their inertia, and are trapped adhering onto the inner surface by their stickiness, and
25 thus accumulate in the tar constituent accumulation chamber A.

In the above, the present invention has been described in detail in terms of a particular embodiment, but the present invention is not limited to this, and it will be clear to those skilled in the relevant art that various modifications are possible within the scope
25 of the invention.

CLAIMS:

1. A tar removing cigarette holder comprising a body having a cylindrical bore arranged to serve at a first end portion thereof as a cigarette attachment aperture and a cup portion located in said bore and supported
5 from said body via a plurality of bridge portions formed to be integral with said body and said cup portion, said cup portion having a cylindrical wall portion defining a first annular space with a wall surface of said bore and an end wall portion which closes a
10 first axial end of said cylindrical wall portion thereof, a second axial end of said cylindrical wall portion opposite to said first axial end thereof being open toward said cigarette attachment aperture with at least one partial cut-away being formed at an edge portion
15 of the open end of said cylindrical wall portion, said end wall portion of said cup portion having a projection formed to be integral therewith so as to extend in an axial direction opposite to said open end of said cylindrical wall portion, a mouth piece member attached
20 to said body so as to communicate with said bore at a second end portion thereof opposite to said first end portion, a partition member inserted into said bore, said partition member having an annular disk portion tightly engaged with the wall surface of said
25 bore so as to close the open end of said cup portion and a central tubular projection inserted into said cup portion with a free end thereof spaced from said end wall portion of said cup portion and defining a second annular space with said cylindrical wall portion of said cup portion, said first and second annular
30 spaces being in communication with one another through said at least one partial cut-away of said cup portion,



and a filter element inserted into said second end portion of said bore, said projection restricting insertion of said filter element into said bore so as to ensure a predetermined volume of a tar accumulation chamber
5 in said bore between said cup portion and said filter element.

2. A tar removing cigarette holder according to claim 1, wherein said mouth piece member is mounted to said body so that the former fits around the latter
10 to be mutually rotatable, and an air intake passage is formed between mutually fitting portions of said body and said mouth piece member, whereby the opening area of said air intake passage is variable in dependence upon mutual rotation between said body and said mouth
15 piece member.

3. A tar removing cigarette holder substantially as herein described with reference to, as as shown in, the accompanying Figures.

