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PIPE CONSTRUCTION  
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3,128,776

Fig. 2.

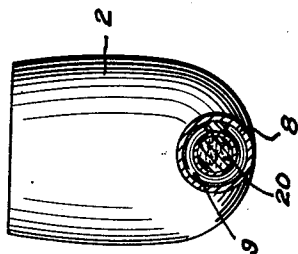


Fig. 1.

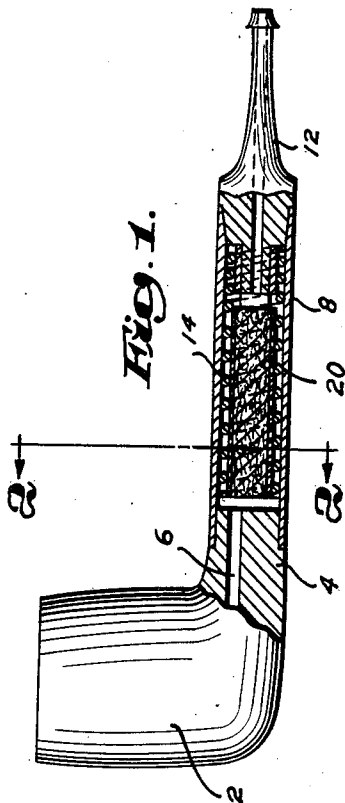
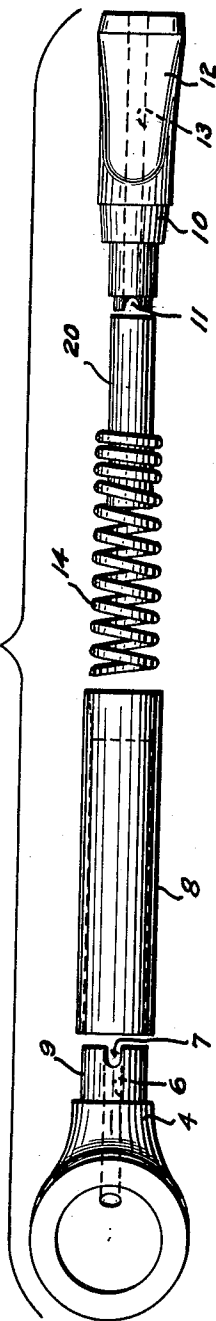


Fig. 3.



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3,128,776

## PIPE CONSTRUCTION

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2 Claims. (Cl. 131-184)

This invention relates to smoking accessories and in particular to improvements in pipes, cigarette holders and similar devices which are adapted to be held in the mouth and employed to draw tobacco smoke through a tubular conduit and out through a mouthpiece.

It is a chief object of the invention to provide an improved filter arrangement for articles of the class indicated. Another object is to provide a replaceable absorbent cartridge which may be brought into contact with a flow of smoke through the stem of a pipe or cigarette holder in a novel manner. Still another object of the invention is to devise a smoke duct construction which includes a novel cooling arrangement and which provides a relatively large heat dissipating area through which a continuous flow of heat may constantly take place simultaneously with an absorbing action.

Still another object is to provide in combination with the improved filter arrangement coiled spring means for engaging within a stem member to carry out scraping and cleaning when the spring means is removed from the stem.

These and other objects and novel features will be more fully understood and appreciated from the following description of a preferred embodiment of the invention selected for purposes of illustration and shown in the accompanying drawings, in which:

FIGURE 1 is a side elevational view partly in cross section illustrating the novel duct arrangement of the invention incorporated in a pipe;

FIGURE 2 is a cross section taken on the line 2-2 of FIGURE 1;

FIGURE 3 is an exploded view in plan of the several pipe components shown in FIGURE 1.

The improved duct arrangement shown in the drawings referred to is based on the novel concept of providing an helical passageway through which smoke must pass in travelling from the point of burning to the mouth of the smoker, which in the case of either a pipe stem, or the mouthpiece of a cigarette holder, comprises a relatively short span. At one side of this attenuated passageway, throughout its entire length, is located an absorbent body, while at the opposite side of the passageway there is arranged an outer smoke confining wall of high heat dissipating characteristics so that a unique filtering and cooling are caused to take place simultaneously.

Referring more in detail to the drawings, numeral 2 denotes a pipe bowl having at its lower side an extension 4 through which extends a central smoke passageway 6. In accordance with the invention, I form the extension 4 with a reduced end in which is provided a slot 7 which intersects the central passageway 6. I combine with this pipe bowl 2, duct forming means including a tubular member 8 which is constructed of a material of relatively high heat dissipating characteristics such as, for example, thin aluminum tubing. One end of this aluminum tubing 8 is arranged to be snugly fitted over a reduced end 9 of the stem 4 as suggested in FIGURE 1. At its opposite end, the tubing 8 is formed with a slight inside taper for engagement with a correspondingly tapered shoulder 10 of a mouthpiece 12. The latter member is also formed with a radially extending slot 11 which connects with a central opening 13.

Within the tubular member 8, I mount a duct forming element consisting of a helical member 14 which may, for example, consist of a stainless steel wire. At one end, this helical member has a number of turns arranged

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in close proximity to one another and adapted to engage over the reduced end of the mouthpiece as noted in FIGURE 1. The remainder of the turns are spaced apart an appreciable distance to constitute a helical duct. The outer diameter of the helical body is preferably chosen of a magnitude slightly greater than the inside diameter of the tubular member 8 so that the helical turns are radially compressed when forced into the tubular member 8. By means of this arrangement it will be observed that each of the helical turns is thus in resilient sealing contact with the inner peripheral surface of the shell throughout substantially its entire length. It will also be observed that as the helical turns are spaced apart they cooperate with the tubular body in forming a helical duct which is closed at its outer peripheral portion.

In further combination with the tubular member 8 and helical duct forming element, I also provide a replaceable absorbent cartridge 20 consisting of a cylindrical mass of compressible fibrous material suitable for functioning as an absorbent agent with respect to moisture, tars, nicotine and other substances contained in tobacco smoke. The outer diameter of the cartridge is of a diameter such that it engages snugly inside of the helical coil as shown in FIGURE 1 and thus the absorbent cartridge constitutes an inner side of the helical duct above noted.

The absorbent cartridge may be of a length such that it just fills the space occurring between the end of extension 4 and the end of mouthpiece 12, or it may be of a slightly smaller length as shown in FIGURE 1.

In either case, it will be observed that smoke drawn from the bowl 2 is conducted through the passageway 6 and along the radially located slot 7 and into the beginning of the helical duct at one extremity of the helical member 14. The smoke is then caused to pass along a relatively elongated path of travel comprised by the helical turns lying between the absorbent body 20 and the tubular member 8. In the course of its travel along this elongated path the smoke is constantly in a turbulent state and moving across the surface of the tubular body 8 so that a high heat dissipation takes place and a very considerable cooling action is realized. At the same time, the smoke is compressed against the absorbent body 20 and forced to pass through the relatively thin small duct area between the tubular member 8 and the absorbent cartridge 20. As a result a greatly increased absorption takes place and removal of substantial quantities of moisture and nicotine is carried out. The net result of the two operations taking place simultaneously and over a relatively drawn out path of travel is to provide an exceedingly cool, fresh smoke flavor of desirable character.

It is pointed out that each of the helical duct forming components may be readily removed for cleaning or replacement, and the resilient nature of the helical wire maintains a constant sealing engagement through radial compression with both the tubular member and with the absorbent body. It will also be seen that a desirable scraping and cleaning is accomplished by the coiled spring arrangement when the coiled spring and mouthpiece are removed.

From the foregoing disclosure it will be apparent that I have provided a unique duct forming structure which is combined with means for burning tobacco in such a way that a circuitous path of travel is defined along which a relatively large contact area is presented for heat dissipation. The parts are conveniently organized so that they may be removed for cleaning and replacement whenever desired. Moreover, the absorbent cartridge and tubing construction is of relatively simplified construction and avoids expensive machine tooling operations.

While I have shown one preferred form of the inven-

tion, it will be understood that various changes and modifications may be resorted to in keeping with the scope of the invention covered by the appended claims.

I claim:

1. An improved smoking device comprising a member 5 for holding and burning a quantity of tobacco, said member being formed with a tubular extension having a central passageway and a radial slot intersecting said passageway, a pipe stem element comprising a cylindrical sleeve secured at its inner end to the tubular extension, 10 a mouthpiece formed with a smoke passageway and constructed with a reduced inner end and an intermediate shouldered portion, said shouldered portion being snugly fitted into the pipe stem element at the outer end thereof in a position such that the reduced inner end of the 15 mouthpiece element extends into the pipe stem in spaced relation to its inner peripheral surface, a helically coiled spring received in the pipe stem and arranged to have helical turns thereof engaging the reduced inner end of the mouthpiece, a radially compressible absorbent body 20 held within the helical turns of the spring, said spring having an outer diameter normally greater than the inner diameter of the pipe stem member and being radially compressed to tightly engage with the pipe stem and the reduced inner end of the mouthpiece to detachably 25 secure these parts to one another in a manner such that they may be disengaged by twisting the spring in one direction only, said absorbent body being radially compressed and held by the radially compressed spring and

cooperating with the spring and cylindrical stem element to form a helical duct along which smoke may travel, and said helical turns of the compressed spring being adapted to exert a pressure radially outwardly against the inner peripheral surface of the stem member and to constitute means for scraping and cleaning the stem element when the coiled spring and mouthpiece are removed therefrom, and said radial slot providing communication between the helical duct and the member for 10 holding tobacco.

2. A structure according to claim 1 in which the member for burning and holding tobacco consists of a pipe bowl.

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