Sept. 20, 1971 J. K. PATTERSON 3,605,758

TOBACCO PIPE WITH MAGAZINE

Filed April 21, 1970 2 Sheets-Sheet 1

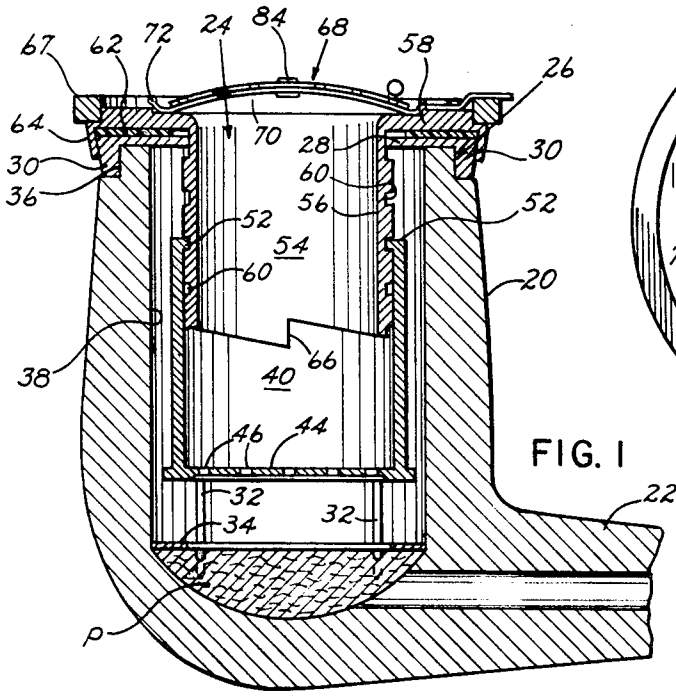


FIG. 1

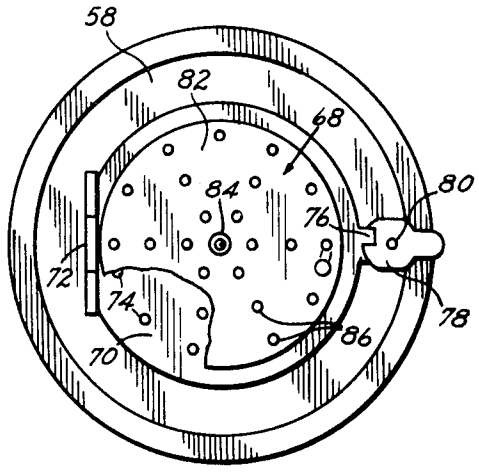


FIG. 2

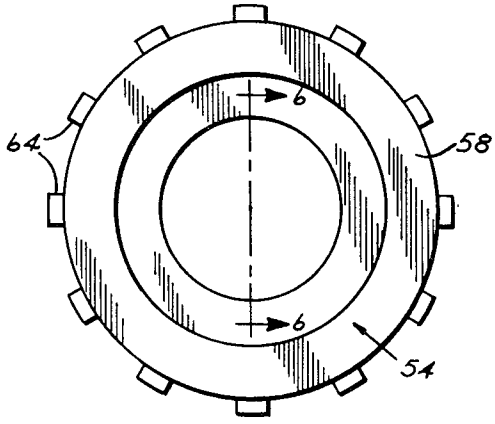


FIG. 3

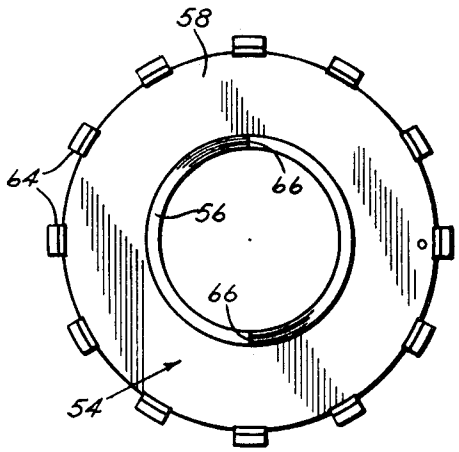


FIG. 4

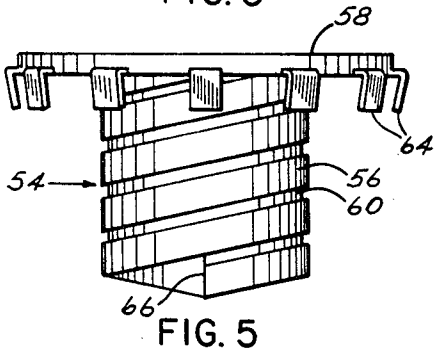


FIG. 5

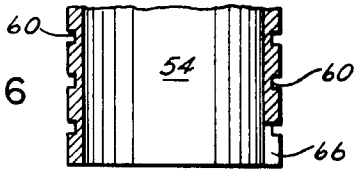


FIG. 6

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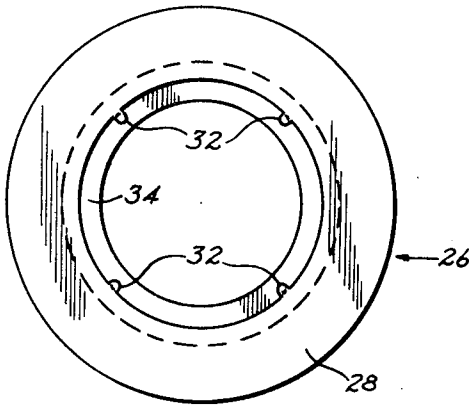


FIG. 7

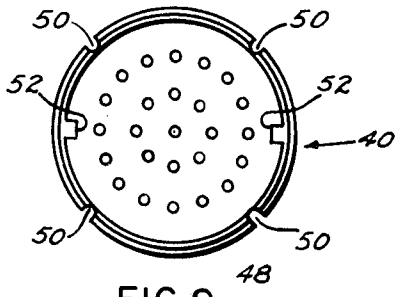


FIG. 9

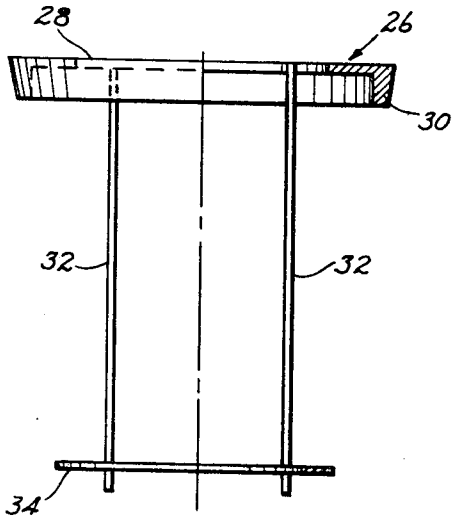


FIG. 8

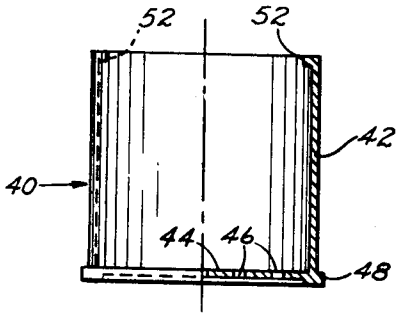


FIG. 10

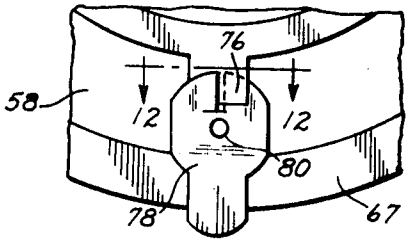


FIG. 11

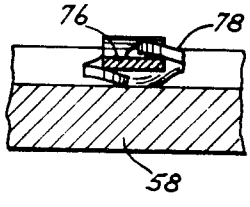


FIG. 12

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3,605,758

TOBACCO PIPE WITH MAGAZINE

Jay K. Patterson, P.O. Box 454, Laramie, Wyo. 82070

Filed Apr. 21, 1970, Ser. No. 30,384
Int. Cl. A24f 5/06
U.S. Cl. 131—181 9 Claims

ABSTRACT OF THE DISCLOSURE

A tobacco pipe having a tobacco magazine operable to progressively advance unburned tobacco upwardly to a combustion zone located adjacent the upper end of the pipe bowl. The upper end of the bowl is normally closed by a draft control assembly which controls the distribution of air through the combustion zone to achieve even combustion and to provide a self-tamping action to the ashes and coal as fresh tobacco is fed to the combustion zone.

BACKGROUND OF THE INVENTION

In conventional tobacco pipes, the charge of tobacco is consumed progressively downwardly from the open top of the pipe bowl. As the charge is consumed, the coal becomes progressively covered with ashes, thus progressively decreasing the efficiency of combustion as the charge is consumed. While this condition can be corrected to some extent by knocking out the ashes periodically, this action usually results in also knocking out or loosening part of the coal, requiring relighting and/or tamping of the remaining charge to concentrate the coal. Further, as the charge is consumed, the remaining unconsumed portion of the charge becomes moist and gummy, further increasing the difficulty in achieving complete combustion of the final portion of the charge at the bottom of the bowl where the efficiency of combustion is at its lowest. This in turn results in the accumulation of tar, moisture, and incompletely consumed tobacco particles in the bottom of the bowl.

The present invention is designed to minimize this problem by achieving uniform and thorough combustion of the entire charge of tobacco.

SUMMARY OF THE INVENTION

The present invention employs a tobacco magazine in the form of a tobacco receiving cup and tubular elevating member mounted within the pipe bowl in threaded relationship to each other so that the cup can be progressively elevated to advance fresh tobacco upwardly to a combustion zone which is maintained near the upper end of the bowl. A frame assembly is fixedly mounted on the bowl rim and projects downwardly into the bowl to restrain the cup against rotation and to guide it in vertical movement within the bowl while at the same time supporting the elevating member for rotation. A draft control assembly in the form of a pair of perforated discs is hingedly mounted upon the frame assembly for movement between an open position and a closed position in which the draft control discs overlie the opening at the upper end of the elevating member. Control of the draft is accomplished by rotating the discs relative to each other to achieve the desired degree of overlapping between the perforations in the respective discs. A latch is also mounted upon th elevating member to latch the draft control discs in their closed position.

Other objects and features of the invention will become apparent by reference to the following specification and to the drawings.

In the drawings:

FIG. 1 is a partial cross-sectional view on a central vertical plane of a pipe embodying the present invention;

FIG. 2 is a top plan view, with certain parts broken away, of the pipe bowl of FIG. 1;

FIG. 3 is a top plan view of the rotatable elevating element of the pipe of FIG. 1;

FIG. 4 is a bottom elevation of the rotatable element of FIG. 3;

FIG. 5 is a side elevational view of the rotatable element of FIG. 3;

FIG. 6 is a partial cross-sectional view taken on line 6—6 of FIG. 3;

FIG. 7 is a top plan view of the stationary frame assembly of the pipe of FIG. 1;

FIG. 8 is a side elevational view of the frame assembly, partially in section;

FIG. 9 is a top plan view of the tobacco-receiving cup of the pipe of FIG. 1;

FIG. 10 is a side elevational view of the tobacco cup partially in section;

FIG. 11 is a detail plan view of the draft control latch assembly; and

FIG. 12 is a detail cross-sectional view taken on line 12—12 of FIG. 11.

Referring first to FIG. 1, a pipe bowl **20** and stem **22** of conventional shape are shown in cross-section with a tobacco magazine assembly embodying the present invention designated generally **24**. Because, as will be apparent from the following description, burning tobacco in the present invention does not directly contact the inner wall of bowl **20**, bowl **20** may be assumed to be either that of a pipe of conventional construction or bowl **20** may be constructed from some material which is less expensive than briar or other material employed in conventional pipes.

Tobacco magazine **24** includes a stationary or fixed frame assembly designated **26** whose construction is most clearly shown in FIGS. 7 and 8. Frame **26** includes an annular upper frame member **28** formed with an integral downwardly depending flange **30** which extends around its outer periphery. The outer side of flange **30** is undercut as shown in FIG. 1. Four guide rods **32** are fixedly secured at their upper ends, as by weldments, to the inner periphery of member **28** and project axially downwardly from member **28**. Adjacent their lower ends, guide rods **32** are fixedly secured to an annular lower frame member or ring **34**. Referring to FIG. 1, it is seen that frame assembly **26** is mounted upon pipe bowl **20** by supporting its upper frame member **28** upon the rim of the pipe bowl with flange **30** seated within a complementary notch **36** formed at the outer periphery of the bowl rim. Preferably, notch **36** is so dimensioned as to achieve a reasonably secure force fit with flange **30**. The dimension of lower frame member **34**, and its location on guide rods **32** is such that when upper frame member **28** is seated in assembled position upon the bowl as indicated in FIG. 1, the outer periphery of ring **34** is engaged with the inner wall **38** of pipe bowl **20** which is formed as a true cylindrical surface in its extent from the bowl rim inwardly to the point at which it is engaged by ring **34**. Guide rods **32** project below ring **34** and are seated in suitable bores indicated by dashed lines in FIG. 1, in the bottom of bowl **20**.

The function of guide rods **32** is to guide a tobacco receiving cup **40** in vertical movement within bowl **20** while restraining the cup **40** against rotation. The structure of cup **40** is best seen in FIGS. 9 and 10. Cup **40** is constructed with a cylindrical side wall **42** and a flat bottom wall **44** which is bored or perforated as at **46**. The cup bottom is formed with an outwardly projecting flange **48** which is notched as at **50**, guide rods **32** being slidably received within notches **50** to restrain the cup against rotation within the pipe bowl and at the same time to guide it in vertical movement upwardly and downwardly within

bowl 20. At its open upper end, cup 40 is formed with a pair of diametrically opposed lugs 52 which project inwardly beyond the inner side wall of the cup.

Raising and lowering of cup 40 along guide rods 32 is accomplished by a rotatable elevating member designated generally 54 whose structure is most clearly shown in FIGS. 2 through 6. Elevating member 54 is formed with a hollow cylindrical body section 56 having an integral radially outwardly projecting flange 58 at its upper end. The outer surface of the cylindrical body section 56 is formed with a pair of helical grooves 60 into which, as best seen in FIG. 1, the lugs 52 of tobacco cup 40 project. Elevating member 54 is rotatably supported upon upper frame member 28 by an annular ring 62 of polytetrafluoroethylene (marketed under the trademark Teflon by E. I. du Pont de Nemours & Co.) which functions both as a rotary seal and as an anti-friction bearing between flange 58 of the elevating member and frame member 28. A plurality of downwardly and inwardly inclined resilient tabs 64 integrally formed on the outer periphery of flange 58 engage the undercut outer sides of flange 30 of frame member 28 to retain the frame, Teflon ring 62 and elevating member in assembled relationship while accommodating rotation of member 54 relative to frame member 28.

The lower edge of cylindrical section 56 is formed with two or more sawtooth-like wiping edges 66 which scrape the inner side wall of cup 40 to prevent the buildup of tar-like deposits on the wall and to force fresh tobacco toward the center of member 54. An annular ring 67 of heat insulating material is snapped onto the periphery of flange 58 to enable the elevating member to be rotated without touching the heated metal elevating member.

A draft control assembly designated generally 68 is mounted upon elevating member 54 to overlie the open upper end of the elevating member. Assembly 68 includes a lower member 70 hingedly mounted upon flange 58 as at 72 and formed with a series of bores 74. At a location diametrically opposite hinge 72, lower member 70 is formed with a latching tab 76 which may be engaged by a latch member 78 pivotally mounted upon flange 58 as by a pivot pin 80. Draft control 68 also includes a second or outer disc 82 which is pivotally mounted upon the top of lower member 70 as by a pivot pin 84 in the form of a hollow rivet. Outer member 82 is also provided with a series of bores 86 which are arranged, in a well-known manner, so that by adjusting the rotative position of outer member 82 upon inner member 70, the admission of air to the interior of the magazine may be regulated by regulating the degree of overlapping between bores 86 and bores 74. Preferably both members 70 and 82 are dished as indicated in FIG. 1 to increase the rigidity of the assembly.

If desired, an absorbent pad or filter P may be placed in the bottom of the bowl below ring 34 to function as a filter and moisture trap.

With the parts assembled as shown in FIG. 1, operation of the device is as follows.

Elevating member 54 is rotated in a counterclockwise direction as viewed from above to lower cup 40 to its lowermost position, established by the engagement of cup 40 with lower frame ring 34. Latch member 78 is then pivoted to unlatch the draft control assembly 68 which is then swung upwardly about its hinge 72. A charge of tobacco is then loaded into the magazine, the charge being supported upon the perforated bottom wall of the cup and filling the entire interior of the magazine to approximately the upper end of elevating member 54.

The pipe is then lit, the draft control assembly being relatched and adjusted by rotating upper member 82 to achieve the desired regulation of draft through the burning tobacco. If desired, the draft control can be completely controlled with the orifice through hollow rivet 84 providing the only air inlet. This restricted opening tends to reduce the air pressure within the bowl, causing incoming air to distribute itself evenly throughout the bowl.

The burning tobacco is confined to the upper portion of the magazine interior, substantially all combustion taking place within approximately the upper half of cylindrical body section 56 of the elevating member. As the tobacco is consumed, elevating member 54 is occasionally rotated in a clockwise direction as viewed from above to thus intermittently elevated cup 40 to bring fresh unconsumed tobacco upwardly into the combustion zone near the upper end of elevating member 54. The feeding of fresh tobacco upwardly toward the closed draft control 68 causes the ash and coal to be tamped automatically. The draft control assembly occasionally may be opened, as desired, to empty out accumulated ash.

By maintaining the combustion zone near the upper end of the pipe bowl, a uniform and adequate draft is always maintained in the combustion zone, which stays in the same relationship to the bowl rim throughout the smoking of the entire charge of tobacco. This enables the entire charge to burn uniformly and prevents the accumulation of incompletely consumed tobacco in the bottom of the bowl as in the case of conventional pipes. The latched draft control provides a self-tamping action, while the sawtooth wiping edge 66 exerts a self-cleaning action on the inner cup wall as well as scraping fresh tobacco from the wall and forcing it into the reduced diameter of member 54.

The device is readily disassembled for thorough cleaning by pulling elevating member 54 upwardly to snap its retaining tabs 64 free from the undercut edge of flange 30 of the frame. Alternatively, the elevating member can be rotated to force cup 40 downwardly against ring 34 to provide the push necessary to unsnap the retaining tabs 64. This permits the entire assembly, with the exception of fixed frame 26, to be removed from the pipe, upon which cup 40 can be unthreaded from elevating member 54. Because the tobacco and its combustion are maintained within the interior of elevating member 54 and cup 40, the frame assembly is not directly exposed to the tobacco and coal, and because of the efficient combustion obtained, the accumulation of liquid or gummy deposits on the interior of the pipe bowl and stem is minimized.

While one embodiment of the invention has been described in detail, it will be apparent to those skilled in the art that the disclosed embodiment may be modified. Therefore, the foregoing description is to be considered exemplary rather than limiting and the true scope of the invention is that defined in the following claims.

I claim:

1. In combintion with a tobacco pipe having a bowl with an upper open rim thereon; a tobacco magazine comprising an annular frame member fixedly mounted on the rim of said bowl, a plurality of guide members fixed to said frame member and projecting axially from said frame member downwardly into the interior of said bowl, a cylindrical tobacco receiving cup mounted on said guide members for axial sliding movement, said cup having a perforated bottom and an open upper end, a cylindrical elevating member having annular flange means at its upper end rotatably supporting said elevating member upon said frame member, and means coupling said elevating member to said cup to raise a lower said cup along said guide members upon rotation of said elevating member upon said frame member.

2. The combination claim 1 wherein the lower end of said elevating member is telescopically received within said cup, and means on the lower edge of said elevating member for scraping tobacco from the wall of said cup upon rotation of said elevating member.

3. The combination of claim 1 further comprising draft control means hingedly mounted on said flange of said elevating member for movement between an open position and a closed position wherein said draft control means overlies the open upper end of said elevating member.

and latch means for releasably retaining said draft control means in said closed position.

4. The combination of claim 1 further comprising an annular ring of heat insulating material mounted upon the outer periphery of said flange means of said elevating member.

5. In combination with a tobacco pipe having a bowl with an upper open annular rim and a cylindrical inner wall surface; a tobacco magazine comprising an annular upper frame member seated upon said rim, a plurality of elongate guide rods fixedly secured at their upper ends to the inner periphery of said annular upper frame member and projecting downwardly therefrom into said bowl in parallel relationship to said inner wall surface, an annular lower frame member fixedly secured to the lower ends of said guide rods and engaged with said inner wall surface, a cylindrical tobacco cup having an open upper end and a perforated bottom wall slidably received between said guide rods, means defining grooves in said cup slidably engaged with said guide rods to restrain said cup against rotation and to guide said cup in axial movement within said bowl, a hollow open ended cylindrical elevating member having a lower end telescopically received within said cup and a radially outwardly projecting flange at its upper end mounted upon said upper frame member for coaxial rotation thereon, helical thread means interengaged between said cup and said elevating member for raising and lowering said cup within said bowl upon rotation of said elevating member on said upper frame member, draft control means hingedly mounted on said flange for movement between an open position exposing the interior of said elevating member and a closed position wherein said draft control means overlies the open upper end of said elevating member, and means for releasably latching said draft control means in said closed position.

6. The combination defined in claim 5 wherein the outer peripheral surface of said annular upper frame member is

a frustoconical surface inclined downwardly and inwardly of said bowl, and a plurality of downwardly and inwardly inclined resilient tabs on the outer periphery of said flange of said elevating member engaged with said frustoconcial surface to resiliently and releasably retain said elevating member on said upper frame member.

7. The combination defined in claim 6 further comprising means engaged between said flange and said frame member defining a low friction bearing and air seal between said flange and said upper frame member.

8. The combination defined in claim 7 further comprising an annular ring of heat insulating material mounted upon the outer periphery of said flange.

9. The combination of claim 5 further comprising a pad of absorbent material in said bowl beneath said lower frame member.

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JOSEPH S. REICH, Primary Examiner

U.S. Cl. X.R.

131—183