Sept. 14, 1943. M. ANDIS 2,329,578

TOBACCO PIPE

Filed Oct. 20, 1941

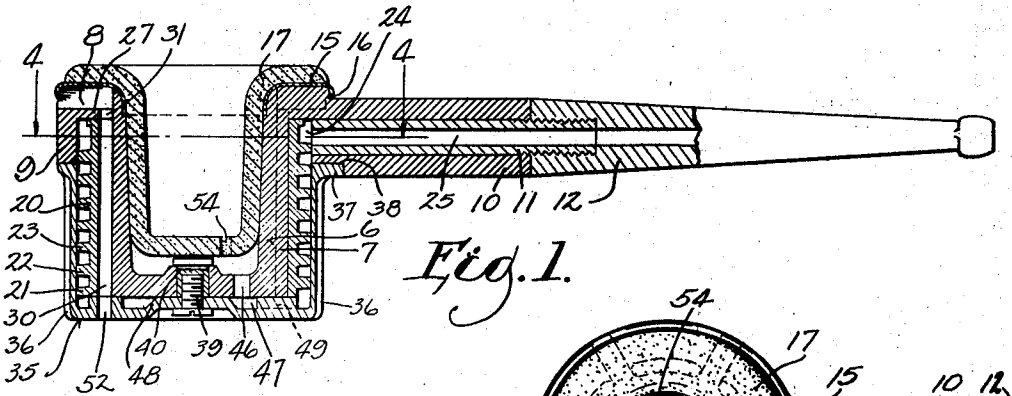


Fig. 1.

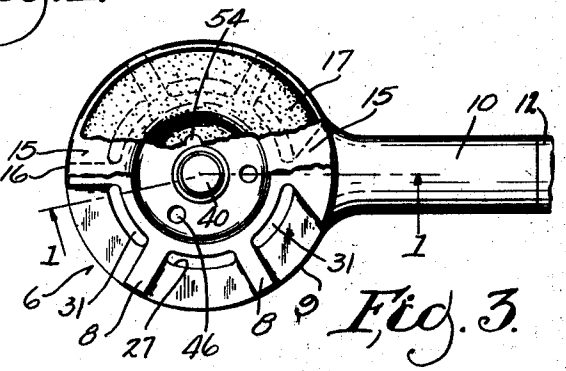
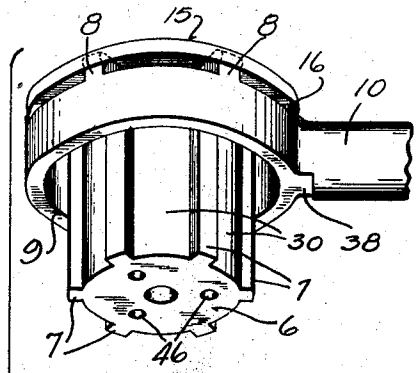


Fig. 3.



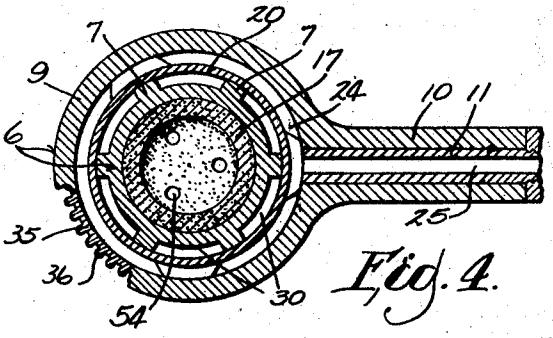
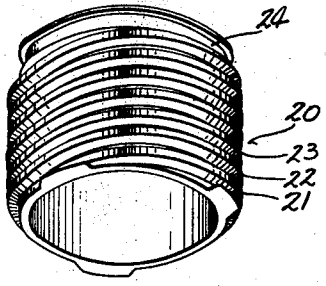


Fig. 4.



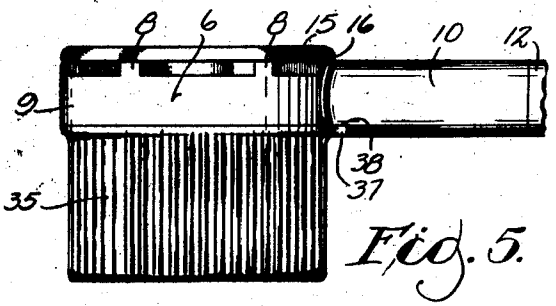


Fig. 5.

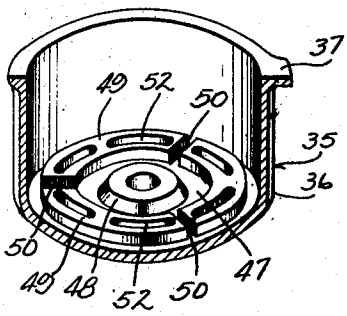


Fig. 2.

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Patented Sept. 14, 1943 2,329,578

UNITED STATES PATENT OFFICE

2,329,578

TOBACCO PIPE

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Application October 20, 1941, Serial No. 415,707

4 Claims. (Cl. 131—195)

This invention relates to improvements in tobacco pipes.

It is the primary object of the invention to provide a tobacco pipe small enough to be carried in the pocket and having a novel and improved construction such as to furnish adequate cooling of the smoke in such a pipe.

It is desirable to cool the smoke in order that it need not irritate the mouth and tongue of the smoker. Air is the only practicable medium for accomplishing cooling in a small sized pipe. In order to provide for the heat rejection from the smoke within the space available in a small sized tobacco pipe, it is proposed to elongate the smoke passage between the bowl and the stem of the pipe by extending it circumferentially and helically about the bowl, while, at the same time, making provision for exchange of heat to the atmosphere and for thermal insulation of the smoke passage from the bowl.

Because of the heat developed in the bowl, there would, in the absence of my improved provision for insulation, be a tendency for the smoke to become superheated rather than cooled when passing about the bowl.

It is my further object to provide for convection currents of cooling air between the smoke passage and the bowl and to provide a novel, improved, and commercially practicable structure easily assembled and disassembled for guiding the convection currents of cooling air and the currents of smoke through their respective conduits to accomplish the objectives of this invention.

Other objects of the invention will be apparent to those skilled in the art upon scrutiny of the following disclosure.

In the drawing:

Fig. 1 is a view, principally in longitudinal section, but partially in side elevation of a complete smoking pipe embodying the invention.

Fig. 2 shows in perspective several of the component elements making up my improved pipe as they appear when separated to expose their construction, one of such elements being illustrated in section.

Fig. 3 shows the smoking pipe of Fig. 1 in plan with successive parts broken away to expose underlying parts in the plan.

Fig. 4 is a detailed view taken in section on the line 4—4 of Fig. 1 with a portion broken away to a lower section.

Fig. 5 is a side elevation slightly modified from the Fig. 1 construction.

Like parts are identified by the same reference characters throughout the several views.

My improved pipe comprises a bowl element 6 which may conveniently be made of plastics, but may alternatively be made of metals or other materials. The bowl element 6 is provided with externally vertical ribs at 7 terminating at their upper ends in radially projecting arms 8 integrally connecting with the bowl element 6 and external annulus 9 which is spaced therefrom, as best shown in Fig. 2. Also integrally connected as a unit with the bowl 6, the ribs 7, the arms 8 and the annulus 9 is the stem portion 10 which has a separately formed liner 11 to which the bit 12 is threaded, this means of connecting the pipe being more or less conventional.

A finishing ring 15, which may conveniently be made of stainless steel or the like, is fitted within the upper margin of the bowl element 6 and has a reversely spun bezel portion 16 which may be snapped about the projecting ends of arms 8 as shown in Fig. 2.

The bowl element 6 may directly receive the tobacco, in which case the pipe will appear as shown in Fig. 5 or, alternatively, the bowl may receive a bowl insert 17 of wood, or of porcelain, or any other suitable material, in which case the pipe will appear as shown in Fig. 1 and Fig. 2. Where the insert 17 is used, the member 15 may be omitted, its presence being unnecessary. It is the function of the overhanging portions of these elements, whether used together or separately, to exclude tobacco from the air passages into which the tobacco might otherwise fall during the filling of the bowl. Whether the tobacco is placed in the bowl element 6 directly or whether it is placed in an insert 17 is entirely immaterial to the functioning of the device and these constructions will hereinafter be referred to alternatively as the bowl of the pipe without meaning thereby to distinguish against either construction.

A tubular partition element 20, preferably made of metal such as magnesium or aluminum alloys, is made to fit closely to the external surfaces of the vertical ribs 7 of the bowl element 6. For the greater part of its height, the partition sleeve 20 is helically threaded, it being preferred to use three threads at 21, 22 and 23, as shown in Fig. 2. The threads terminate short of the top of the tubular partition element 20 so that when said element is inserted between the annulus 9 and the bowl element 6, as shown in Fig. 1, there will be, above the threads, an annular smoke mani-

fold 24 with which the opening 25 through the stem liner 11 is in communication. The height of the threads is such that the uppermost ends of the several threads fit closely within annulus 9, the annulus comprising the outer side of manifold 24. At its top, the manifold is closed by an inwardly overhanging flange at 27 against which the partition ring 20 seats.

Between the several vertical ribs 7 of the bowl element 6 are passages 30 for vertically moving convection currents of cooling air. These passages register with ports formed at 31 between the flange 27 of annulus 9, the bowl element 6 and the several arms at 8 which connect the bowl element, the flange 27 and the annulus. These passages are best illustrated in Figs. 1 and 3. They open outwardly to the atmosphere beneath the finishing ring 15 and between arms 8, as best shown in Figs. 1 and 2.

The threads of partition element 20 are enclosed by a shell element 35, preferably made of some light and thermally conductive metal such as aluminum or magnesium alloys, the outer surface of which is ribbed at 36 (Fig. 5) to increase its surface for heat radiation. The top of the shell element 35 is made to abut the lower margin of the annulus 9 of bowl element 6. To secure proper registration of the shell element 35 in a desired angular position with respect to the rest of the parts, the shell element may be provided with a projecting tab at 37 adapted to fit into a recess formed at 38 (Fig. 1, Fig. 2 and Fig. 5) in the under portion of the stem 10. A central aperture in the shell element 35 receives a screw 39 engageable in a nut 40 molded into the bottom of the bowl element 6 whereby the parts are securely but demountably held together.

In the bottom of shell element 35, there is means providing passages for the proper allocation of smoke and air currents. The bottom of the bowl element has apertures at 46 for smoke delivery into the underlying distributing manifold 47 which is bounded internally by the boss 48 through which the screw 39 passes. Externally, the distributing manifold 47 is bounded by segmental partitions 49 between which passages 50 lead radially outwardly to a peripheral groove from which lead the threads 21, 22 and 23 of the partition element 20, the arrangement being such that smoke is delivered into the several channels between the threads to pass upwardly at the outside of the partition element 20 but within the shell 35 to the smoke receiving manifold 24 which communicates with the stem 25.

The several segmental partitions 49 are broad and are surfaced to fit tightly against the lower ends of the bowl element 6 and the partition sleeve 20 to span the space therebetween. Arcuate slots at 52 pass through the bottom of the shell element 35 in registry with the air passages 30 which, as above described, lie between the ribs 7 of the bowl element and between the bowl element and the partition sleeve 20. The slots 52 complete the paths for convection currents of cooling air, such currents being admitted through the slots 52 to rise through passages 30, escaping through slots 31 and between arms 8 to the external atmosphere beneath the finishing ring 16.

At the same time the smoke drawn toward the stem passes downwardly through the openings 46 of the bowl element into the distributing manifold 47, thence issuing through the radial notches 50 between the segmental partitions 49 to reach the channels between the threads 21, 22 and 23 of the partition element 20. Passing upwardly through such channels the smoke reaches the collecting manifold 24 which communicates directly with the stem passage 25 leading to the bit.

The air passages at 30 directly intervene between the bowl element and the channels in which the smoke is cooled. Thus, the heat of the bowl element is precluded almost entirely from reaching the smoke which is in progress of being cooled. The cooling is achieved in part through heat rejection into the convection currents in passages 30 and in part by rejection into the shell element 35 and radiation from the ribs 36.

If the insert 17 is used, it will, naturally, be provided with smoke openings at 54 in its bottom.

Regardless of the materials from which it may be cast, molded or machined, the construction herewith disclosed is simple, economical of manufacture and practical in use. It provides greatly elongated paths of smoke travel and adequate means for heat rejection from the smoke in the course of such travel while, at the same time, fully protecting the partially cooled smoke from heat developed in the bowl.

I claim:

1. A bowl element having an apertured bottom and provided adjacent its top with outwardly projecting arms, an annular band unitarily connected with the arms, a stem opening outwardly through said band and unitarily connected with the band and bowl element, a flange unitarily connected with the band and said arms and projecting inwardly from the band toward said bowl element but terminating in spaced relation to the bowl element to provide air circulating slots near the top of the bowl element, a finishing ring having its interior margin applied to the bowl element and its exterior margin applied about the ends of said arms in spaced relation to said bowl element, upwardly extending between said arms for the escape of air from said slots, a sleeve provided with exterior peripheral helical rib means, said sleeve being seated against said flange and said band in spaced relation to said bowl element, upwardly extending rib means intervening between the sleeve and bowl element and providing air conduits vented through said slots, and a cup shaped shell marginally abutting the lower portion of said band and encircling the helical rib means of said sleeve, said shell being connected with the bottom of the bowl element and being provided with apertures affording free communication of air with the space between the bowl element and sleeve and being further provided with outwardly extending conduit connections affording communication between the apertured bottom of the bowl element and the smoke conduit means between the sleeve and shell, said smoke conduit means opening into said stem.

2. A tobacco pipe assembly comprising the combination with a bowl member provided with radially extending arms, substantially vertical external ribs and intervening channels arcuate in cross section, of a bowl encircling band in supporting relation to said arms and spaced relation to the bowl member, a separable sleeve fitted to said vertical ribs and subdividing the space between said band and bowl member, said sleeve having helical ribs along its outer surface below said band, a cup-shaped shell having its bottom portion detachably secured to the bowl member with its sides fitted to the helical ribs to provide

smoke channels leading to the annular space between the band and the upper end portion of the sleeve, the bottom of said shell and bowl being formed to provide communication between the bowl and the spaces between the helical ribs, and said shell being also ported to admit air to the channels between the vertical ribs, and a tubular pipe stem connected with the band in communication with the annular space between the ring and sleeve above said helical ribs, said band having an inwardly projecting flange capping the space between it and the upper end of said sleeve.

3. A tobacco pipe comprising the combination of a bowl supporting band provided with a tubular stem, a bowl member having radial arms mounted on the band, an annular cap for said radial arms, a cup-shaped shell enclosing the portion of the bowl member below said band, and means co-operative with the bowl member and shell for providing an annular series of vertical air passages leading directly through the bottom of said shell along the outer surfaces of the bowl member to the spaces between said radial arms and to also provide a separate smoke passage leading from the bowl member along a helical path encircling the space occupied by the air passages and communicating with said stem.

4. A smoking pipe having as an integral unit a bowl provided with a bottom aperture, upwardly extending side ribs, top arms extending outwardly from the upper ends of the ribs and a supporting ring for the top arms provided with a laterally extending tubular pipe stem—in combination with a cap for said arms, a sleeve fitted to the side ribs and having its exterior surface helically grooved to provide a smoke passage leading to the pipe stem, a cup-shaped shell with its sides fitted to the helically grooved portion of the sleeve in closing relation to the passage provided by the groove, said shell having its bottom in contact with the lower portion of the bowl and ported for admission of air to the space between the bowl ribs, the shell being also grooved to provide communication between the bowl aperture and the helical sleeve groove.

MATHEW ANDIS.

CERTIFICATE OF CORRECTION.

Patent No. 2,329,578. September 14, 1943.

MATHEW ANDIS.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, second column, line 41, claim 1, for "bowl element, upwardly extending" read --band whereby to provide openings--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 2nd day of November, A. D. 1943.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)