July 18, 1939. A. B. MODINE 2,166,172

SMOKING PIPE

Filed Dec. 30, 1936

Fig. 1

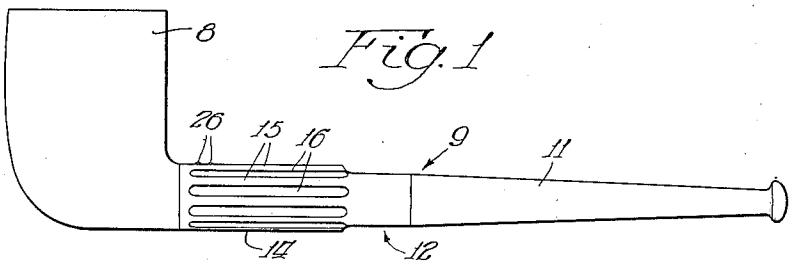


Fig. 2

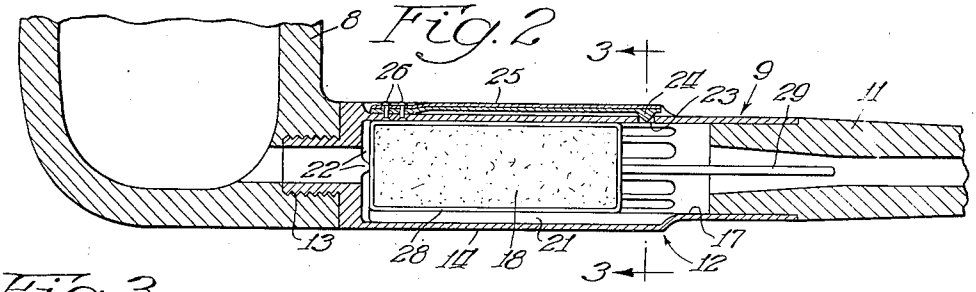


Fig. 3

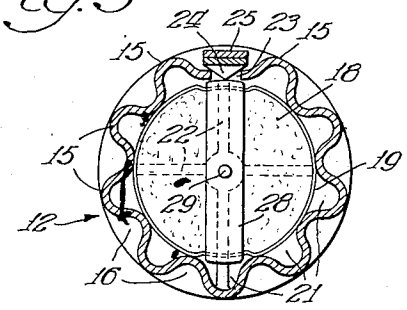


Fig. 7

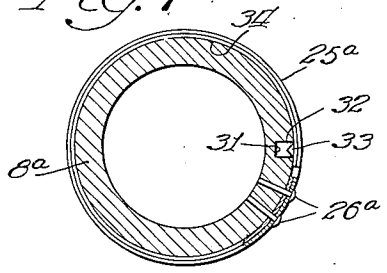


Fig. 4

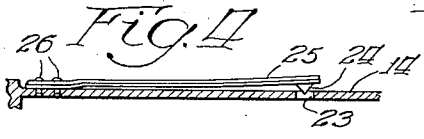


Fig. 6

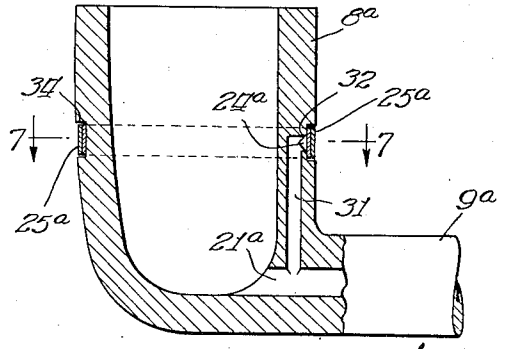
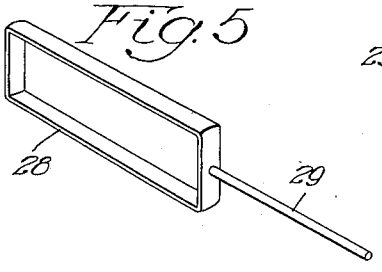


Fig. 5



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SMOKING PIPE

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18 Claims. (Cl. 131—198)

This invention relates to smoking pipes, and among other objects is intended to provide a novel construction and arrangement whereby a cool, dry smoke may be obtained.

Another object of the invention is to provide novel means whereby air may be mixed with the smoke after leaving the bowl and before being taken from the discharge end of the stem.

Another object of the invention is to provide automatically and manually actuated means for controlling the admission of air to the smoke duct between the pipe bowl and the discharge end of the stem.

Another object of the invention is to provide thermostatically actuated means for automatically controlling the admission of air to the smoke duct.

Another object of the invention is to provide an air cooled pipe having suitable moisture retaining and smoke filtering means therein, and wherein said means are arranged to cooperate with portions of the pipe stem to provide smoke ducts adjacent the outer side portions of the stem.

A further object of the invention is to provide novel means for conveniently removing the moisture retaining and smoke filtering means from the stem.

A still further object of the invention is to improve devices of the character described in sundry details hereinafter referred to and particularly pointed out in the appended claims.

Two embodiments of the invention are shown for illustrative purposes in the accompanying drawing, in which:

Fig. 1 is a side elevational view of a smoking pipe embodying features of the present invention;

Fig. 2 is an enlarged longitudinal sectional elevational view of the structure illustrated in Fig. 1;

Fig. 3 is a further enlarged transverse sectional view taken substantially as indicated by the line 3—3 of Fig. 2;

Fig. 4 is a fragmentary sectional view illustrating a portion of the structure shown in Fig. 2 in changed position;

Fig. 5 is a perspective view of a portion of the structure illustrated in Fig. 2;

Fig. 6 is a fragmentary sectional elevational view of a portion of a pipe illustrating a slightly modified construction, which the present invention may assume; and

Fig. 7 is a sectional plan view taken substantially as indicated by the line 7—7 of Fig. 6.

This invention, in part, an improvement on the Smoking pipe of my co-pending application, Serial No. 112,675, filed November 25, 1936, and is a continuation in part of that application, and in the illustrative embodiment shown in Figs. 1 to 5 of the drawing, the present invention comprises a bowl 8 having a stem indicated, as a whole, by the numeral 9 associated therewith, said stem being shown, in the present instance, as comprising a mouth piece 11 and a tubular portion indicated, as a whole, by the numeral 12 positioned intermediate the bowl 8 and the mouth piece 11. The portion 12 is provided with a screw threaded portion 13 adapted to be threaded into a portion of the bowl 8 and comprises an enlarged portion 14 having ribs and grooves 15 and 16, respectively, formed therein in a manner to provide a relatively thin wall or shell of corrugated cross-section as clearly illustrated in Fig. 3, and adjacent one of its ends the portion 12 is provided with an opening 17 having an internal diameter substantially equal to the smallest diameter of the corrugated portion 14.

In the illustrative embodiment, a moisture retaining core or member shown, in the present instance, as a smoke filtering cartridge, formed preferably of fibrous material such, for example, as cotton or the like, and indicated, as a whole, by the numeral 18, is positioned in the portion 14 for filtering out solid substances such as particles of tobacco, tar and slugs entering the stem 9 from the bowl 8, and adapted to absorb and retain any condensate from the bowl or other moisture which may enter the stem 9.

The cartridge 18 is provided on its exterior with a smooth outer surface, indicated at 19 (Fig. 3), produced by treatment of the fibrous material in a manner to retain the cartridge in proper form and yet permit the passage of air and smoke therethrough.

It will be observed that the diameter of the cartridge 18 is substantially equal to that of the smallest internal diameter of the cylindrical corrugated portion 14 of the stem and that the surface of the cartridge cooperates with the corrugations of the portion 14 in a manner to provide a plurality of elongated, substantially parallel, annularly spaced smoke passages or ducts 21 communicating with the bowl 8 through spaces between radially extending ribs 22 provided for spacing the end of the moisture retaining cartridge from the end of the chambered portion 14 of the stem, and through the passages 21, the smoke may pass freely to the mouth piece 11 of the pipe.

It will be observed also that by reason of the

relatively thin character of the material constituting the corrugated wall of the portion 14 of the stem, and the substantial surface area obtained by reason of the corrugations, that in the passage of smoke through the ducts 21 a considerable amount of heat from the smoke will be thrown off or dissipated through the wall of the portion 14, thereby cooling the smoke to some extent before passing to the mouth piece 11.

For further cooling the smoke before passing to the mouth piece 11, the chambered portion 14 is provided, preferably, adjacent its end nearest the mouth piece 7 and, preferably, in one of the grooves 16 between a pair of the ribs 15 as illustrated in Fig. 3, with an air intake opening or port 23 adapted to communicate with the ducts 21 for admitting air thereto.

For automatically controlling the admission of air through the port 23, a valve head 24 is shown, in the present instance, as operatively related to the port 23 in a manner to normally close the port, the valve head 24 being mounted adjacent one end of a thermostat 25 shown, in the present instance, as of the well known laminated bi-metal type, consisting of layers of different metals having relatively different coefficiencies of expansion, and secured adjacent their opposite ends by means of rivets 26 or the like to the wall of the portion 14.

By such an arrangement, it will be apparent that when the heat of the smoke transmitted through the wall or shell of the chambered portion 14 is sufficient to actuate the thermostat 25, the valve head 24 will be moved from operative relation or closed position with respect to the port 23 as illustrated in Fig. 4, in proportion to the effect of the heat on the thermostat and in a manner to permit air to enter the port 23 and mix with the smoke passing to the mouth piece 11, thereby adding a cooling medium to the smoke before entering the mouth of the user.

It will be noted that by reason of the location of the thermostat 25 and the sensitiveness of its construction, the port 23, if desired, may be readily and conveniently maintained in closed position, notwithstanding the action of the thermostat, merely by exerting a light manual pressure on the free end portion of the thermostat.

Thus, it will be observed that, if desired, the admission of air through the port 23 may be manually as well as automatically controlled.

For facilitating the removal of the cartridge 18 from the chambered portion 14 when it is desired to replace the cartridge, a yoke 28 (Figs. 2, 3 and 5) is adapted to surround the cartridge lengthwise thereof, and is provided with a handle member or rod 29 adapted to extend beyond the open end of the chambered portion 14 in a manner to be grasped by the fingers when the mouth piece 11 is removed, for withdrawing the yoke and cartridge from the chamber, after which a fresh cartridge may be inserted within the yoke 28 and positioned within the chambered portion 14 as illustrated in Fig. 2.

In Figs. 6 and 7 is illustrated a modified construction of the invention applied to a pipe bowl 8a having a stem 9a associated therewith and having a smoke duct 21a extending through the stem. The bowl 8a of the structure illustrated in Figs. 6 and 7 is provided with a by-pass 31 communicating at one of its ends with the duct 21a and at its opposite end with an air intake opening or port 32 adapted to be controlled by a valve head 24a mounted on the free end of an annular ring-like bi-metal thermostat 25a positioned in an annular groove 34 formed in the bowl 8a and secured thereto at its opposite end by means of rivets or securing pins 26a.

The function of the thermostat 25a is substantially like that described with reference to the thermostat 25 of Figs. 2, 3 and 4 in that upon heating of the thermostat by reason of the heat within the bowl 8a, the valve head 24a will be moved out of cooperative relationship with respect to the port 32 in proportion to the action of the heat on the thermostat, and in a manner to admit air through the port 32, by-pass 31 and into the smoke duct 21a for cooling the smoke before passing to and through the mouth piece of the pipe.

It will be observed from the foregoing description that the present invention provides a novel construction and arrangement whereby air may be admitted to the smoke ducts or passages for cooling the smoke before reaching the mouth of the user, and wherein the admission of air is automatically controlled by thermostatically operated means which, if desired, may also be under the control of the user.

Obviously, the present invention is not limited to the precise construction and arrangement shown and described as the same may be variously modified. Moreover, all the features of the invention need not be used conjointly as the same may be used to advantage in variously different combinations and subcombinations.

What I claim as new and desire to secure by Letters Patent is:

1. In a smoking pipe comprising a bowl and a stem therefor having a smoke duct formed therein, the combination of a thermostatically controlled air intake valve communicating with said duct.

2. In a smoking pipe comprising a bowl and a stem therefor having a smoke duct formed therein, the combination of a thermostatically and manually controlled air intake valve communicating with said duct.

3. In a smoking pipe comprising a bowl and a stem therefor having a smoke duct formed therein, the combination of an air intake valve communicating with said duct, and a thermostat operatively related to said valve for controlling the passage of air to said duct.

4. In a smoking pipe comprising a bowl and a stem therefor having a smoke duct formed therein, the combination of an air intake valve communicating with said duct, and a thermostat operatively related to said valve for automatically controlling the position of the valve and the passage of air to said duct.

5. In a smoking pipe comprising a bowl, a stem therefor having a smoke duct formed therein, said stem having an air intake port formed therein communicating with said duct, and a thermostatically actuated valve operatively related to said port for controlling the passage of air therethrough.

6. In a smoking pipe comprising a bowl, a stem therefor having a smoke duct formed therein, said stem having an air intake port formed therein communicating with said duct, and a thermostatically actuated valve carried by said stem and operatively related to said port for controlling the passage of air therethrough.

7. In a smoking pipe comprising a bowl, a stem therefor having a smoke duct formed therein closely adjacent the outer side thereof, said stem having an air intake port formed therein and communicating with said duct, a valve opera-

tively related to said port for controlling the passage of air therethrough, and a thermostat adjacent said duct and operatively related to said valve for controlling the position thereof.

8. In a smoking pipe comprising a bowl, a stem therefor having a plurality of smoke ducts formed therein closely adjacent the outer side thereof, said stem having an air intake port formed therein communicating with said ducts, a valve operatively related to said port for controlling the passage of air therethrough, and a thermostat outside said stem between and adjacent certain of said ducts and operatively related to said valve for controlling the position of the valve with respect to said port.

9. In a smoking pipe comprising a bowl, a stem therefor having a plurality of elongated annularly spaced smoke ducts formed therein closely adjacent the outer side thereof, said stem having an air intake port formed therein communicating with said ducts, a valve operatively related to said port for controlling the passage of air therethrough, and an elongated thermostat outside said stem between and adjacent certain of said ducts and operatively related to said valve for controlling the position of the valve with respect to said port.

10. In a smoking pipe comprising a bowl, a stem therefor having a recess in its outer side and having a smoke duct within said stem adjacent said recess, said stem having an air intake port formed therein communicating with said duct, a valve operatively related to said port, and a thermostat in said groove and operatively related to said valve for controlling the position thereof and the passage of air through said port to said duct.

11. In a smoking pipe comprising a bowl, a stem therefor having an elongated groove in its outer side and having a smoke duct within said stem extending substantially parallel to and adjacent said groove, said stem having an air intake port formed therein adjacent said groove and communicating with said duct, a valve operatively related to said port, and an elongated thermostat in said groove and operatively related to said valve for controlling the position thereof and the passage of air through said port to said duct.

12. A smoking pipe comprising a bowl, a stem therefor, said stem having a tubular chamber formed therein, the wall of said chamber being of corrugated cross section, a moisture retaining member in said chamber, said member being adapted to cooperate with portions of the corrugations formed in said wall to provide a plurality of ducts for the passage of smoke longitudinally of the stem adjacent the outer portion thereof, the wall of said chamber having an air intake port, a valve operatively related thereto, and a thermostat extending longitudinally of said stem and operatively related to said valve for controlling the passage of air through said intake port to said ducts.

13. A smoking pipe comprising a bowl, a stem therefor, said stem having a tubular chamber formed therein, the wall of said chamber being of relatively thin corrugated cross-section, a fibrous moisture retaining member in said chamber, said member being adapted to co-operate with portions of the corrugations formed in said wall to provide a plurality of ducts for the passage of smoke longitudinally of the stem adjacent the outer portion thereof, the wall of said chamber having an air intake port; a valve operatively related thereto, and a thermostat extending longitudinally of said stem outside said chamber and operatively related to said valve for controlling the passage of air through said intake port to said ducts.

14. In a smoking article having a tobacco-receiving portion, a mouth-piece and a bore member connecting the tobacco-receiving portion and mouth-piece, said member having a normally closed opening in a portion thereof, and thermostatically controlled means energized by the heat of the smoke passing from the receiving portion through the bore member to said mouth-piece for uncovering the opening and permitting air to be drawn into the bore member to co-mingle with and cool the smoke passing therethrough.

15. In a smoking article having a stem, tobacco-receiving portion and a wall portion having a perforation formed therein communicating with the tobocco-receiving portion and stem, and a thermostatically controlled valve associated with said perforation and adapted to be energized by heat transmitted thereto from the tobacco-receiving portion during the smoking of the pipe to cause the valve to uncover the opening to the atmosphere for permitting the entry of air to co-mingle with the smoke passing from the tobacco-receiving portion to the stem.

16. In a smoking pipe comprising a bowl, a stem therefor having a smoke duct formed therein, said bowl having an air intake port and by-pass formed therein communicating with said duct, and a thermostatically controlled valve operatively related to said port for controlling the passage of air through said by-pass to said duct.

17. In a smoking pipe comprising a bowl, a stem therefor having a smoke duct formed therein, said bowl having a by-pass formed therein communicating with said duct and having a groove in said bowl and an intake port in said groove communicating with said by-pass, a valve operatively related to said port and a thermostat in said groove and operatively related to said valve for controlling the passage of air through said by-pass to said duct.

18. In a smoking pipe comprising a bowl, a stem therefor having a smoke duct formed therein, said bowl having a by-pass formed therein communicating with said duct and having an annular groove in the outer side of said bowl and an intake port in said groove communicating with said by-pass, a valve operatively related to said port, and a thermostat in said groove and operatively related to said valve for controlling the passage of air through said by-pass to said duct.

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