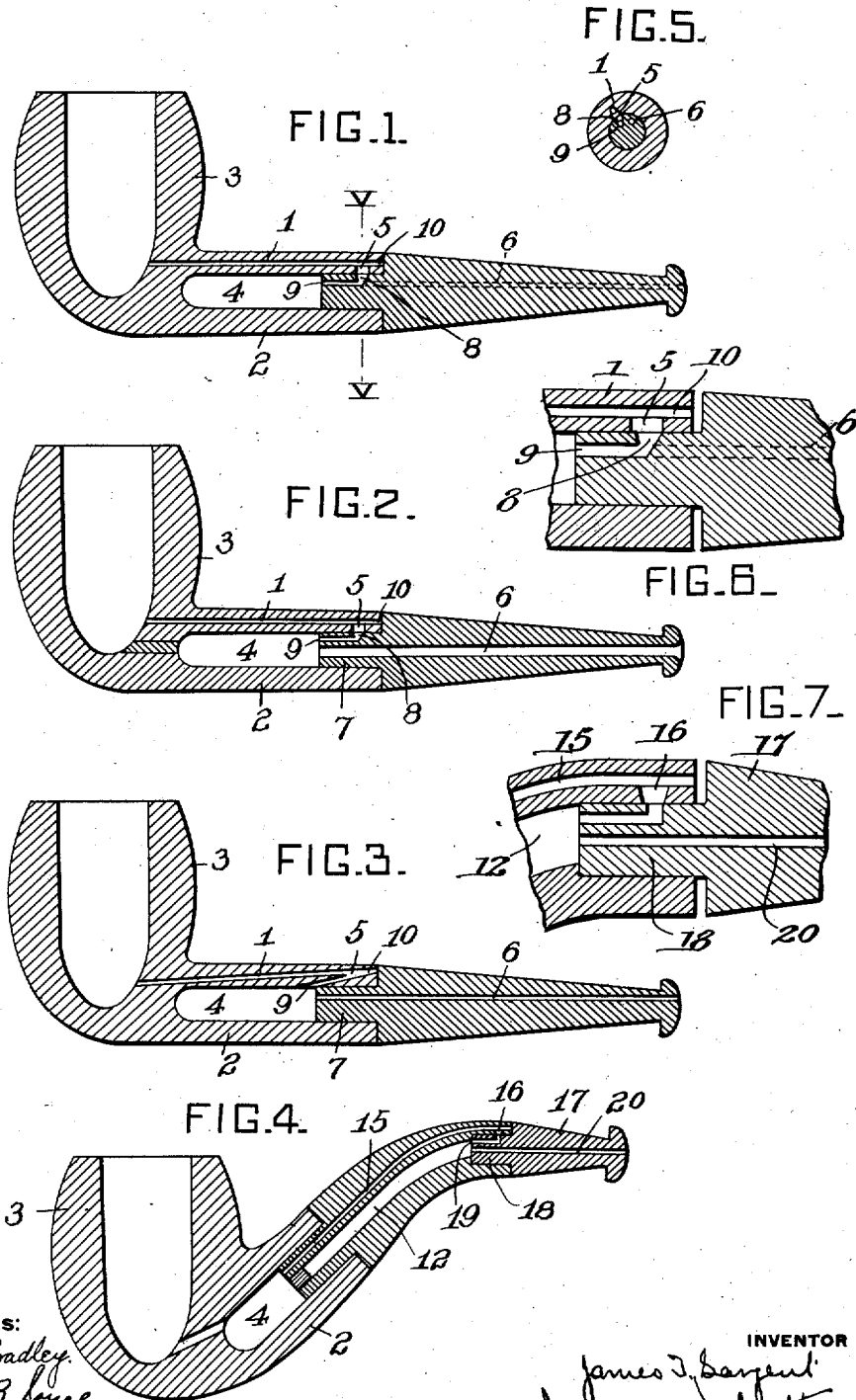


J. T. SARGENT.
PIPE.
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WITNESSES:
J. Herbert Bradley
Thos. B. Joyce

INVENTOR
James T. Sargent
by Samuel B. Wolcott
Atty

UNITED STATES PATENT OFFICE.

JAMES T. SARGENT, OF CHICAGO, ILLINOIS.

PIPE.

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To all whom it may concern:

Be it known that I, JAMES T. SARGENT, residing at Chicago, in the county of Cook and State of Illinois, a citizen of the United States, have invented or discovered certain new and useful Improvements in Pipes, of which improvements the following is a specification.

The invention described herein relates to certain improvements in pipes and has for its object an arrangement of passages extending from the bowl, whereby the hot smoke containing the nicotin in a gaseous form is diverted from its direct path to the mouth piece and is caused to circulate in a chamber sufficiently large to allow of a comparatively free expansion and consequent cooling and partial condensation of the nicotin.

It is a further object of the invention to provide for a mixing of air with the hot smoke prior to its flowing into the nicotin chamber whereby a further cooling of the smoke is effected.

The invention also has for its object certain features of construction, which will be hereinafter more fully described and claimed.

In the accompanying drawings forming a part of this specification, Figure 1 is a sectional view of a pipe embodying my improvements; Fig. 2 is a similar view illustrating the manner of embodying my improvements in pipes now in general use; Fig. 3 is a sectional view illustrating a modification of the construction shown in Fig. 1; Fig. 4 is a sectional view showing my improvement embodied in the outer section of the stem, and Fig. 5 is a transverse view on a plane indicated by the line V—V Fig. 1; Fig. 6 is a sectional view on a large scale of a portion of the stem shown in Fig. 1 and Fig. 7 is a similar view of portions of the stem and mouth piece shown in Fig. 4, both figures showing the arrangement of passages for the introduction of air into the smoke.

It will be understood that in the following description the term stem will include all of the structure from the bowl to that portion held in the mouth unless otherwise specifically stated.

In the practice of my invention, a passage 1 preferably of small bore is formed along the upper portion of the stem 2 and communicates at its forward end with the bowl 3. Below the bore or passage, a recess or

pocket 4 is formed in the stem, and extends parallel with the passage 1 for a substantial distance. A port or opening 5 preferably about twice the diameter of the passage 1 is formed in the stem, connecting the passage 1 with the pocket 4 at a distance from the point where the smoke enters the passage and from the front end of the pocket. The smoke flows from the pocket through a passage 6 formed in the outer portion of the stem preferably along the upper portion of the stem and connecting at one end with the pocket closely adjacent to its upper wall and at its opposite with the outlet from the stem. As is well known the nicotin is in a vaporous condition as it comes from the bowl of the pipe but a considerable portion will quickly condense when the temperature of the smoke is lowered.

A reduction of temperature can be effected in my improved pipe, first by contact with the walls of the passage 1 which is made quite small, its diameter being a sixteenth of an inch as compared with passages of one eighth of an inch in diameter found in pipes as at present constructed. The passage 1 being small the area of its inner surface will be large relative to the quantity of smoke passing through, and hence a proportionally greater reduction of temperature of the smoke will be effected.

The port 5 is preferably connected with the pocket 4 by an angular passage in the plug like extension 7 on the outer section of the stem. The portion 8 of the angular passage has a diameter approximately that of the port 5 with which said portion is brought into alinement when the plug 7 is inserted in the rear end of the pocket 4. The outer end of the portion 8 is reamed out or enlarged so as to avoid a complete or partial closing of the port 5 in case the outer section of the stem is not accurately connected to the bowl. The portion 9 of the angular passage in the plug 7 extends forwardly from the portion 8 through the end of the plug, and is preferably made of the same size as the passage 1. As the port 5 and the portion 8 are made larger than the passage 1 the smoke in passing through the port and portion 8 will expand more than twice its previous volume and will be proportionally cooled. As the portion 9 of the angular passage is of less diameter than the portion 8 the smoke will re-acquire a portion at least of the velocity it had in the

passage 1 and will enter the pocket 4 in the form of a small jet. It is believed that this jet with air from vent at 10 will have sufficient velocity to traverse the entire length of the pocket, which is made of such length and diameter that the smoke will expand to many times the volume it had prior to reaching the pocket. By reason of this expansion there will be such a reduction of temperature that a large portion of the nicotin will be condensed.

The passage 6 in the outer section of the stem is preferably made of the same diameter as the passage 1 so that the flow of smoke into and out of the pocket 4 will be approximately equal. As before stated it is preferred that the passage 6 should be formed above the center line of the outer section of the stem so that when the pipe is laid on its side there will be little if any liability of the liquid contents of the pocket entering the passage 6.

There is a two fold advantage in making the passage 6 of small diameter, first very little saliva will enter it and second whatever saliva flows through it, will be brought intimately into contact with the oppositely flowing smoke and will wash out impurities and take up a considerable percentage of nicotin.

A further cooling of the smoke and consequently a more effective condensation of the nicotin can be effected by the introduction of air into the smoke preferably just prior to its entrance into the pocket 4, where it will collect on the walls and be retained out of line of flow of the smoke. By reason of this early condensation of the nicotin and its retention in the pocket, the clogging of the passage leading from the pocket is largely prevented. The introduction of the air can be conveniently effected where the stem is made in two sections, by extending the passage 1 to the end of the bowl section of the stem as shown at 10. When it is desired to vary the quantity of air the relative positions of the forward end of the mouth section of the stem and the rear end of the bowl section of the stem can be changed, and by bringing the ends of these parts tightly together, the outer end of the passage stem can be completely closed. In order to avoid the deposition of nicotin adjacent to the inner end of the passage 6, especially when condensation is promoted by the introduction of air, it is desirable that the smoke should be directed forwardly as it enters the pocket.

It is characteristic of my improvement that the condensed nicotin and any saliva that may flow through the passage 6 will be held in the pocket, and the ports of passages for the entrance and escape of the smoke are so located that the saliva, etc., will not flow into the same when the pipe is laid flat.

In lieu of embodying my improvements in the body section of the stem, they can be incorporated in the outer section of the stem as shown in Fig. 4. In my preferred construction, a passage is bored from the inner end of this section for a sufficient distance to form a pocket 12, the forward end of which is plugged. A small passage 15 is bored in this section extending parallel with and above the pocket to which it is connected by a port or passage 16. The mouth piece 17 is provided with a plug like extension 18 in which is formed an angular passage 19 to connect port 16 with the pocket 12 from which the smoke is drawn through the passage 20. The flow of air into the passage 15 and thence to the pocket is controlled by the shoulder 21 on the mouth piece.

It will be observed that the pocket 4 corresponds in location, shape and dimension to the socket for the reception of the outer section of the stem in pipes now in universal use, but in my improvement this pocket is not connected at its forward end to the bowl. Hence my improvements can be readily applied to the pipes now in use by sealing the small passage connecting the bowl and socket, and by forming the passages 1 and 10 and port 5 in the bowl section of the stem. The outer section of the present pipe can be adapted for the practice of my invention by forming the angular passage 8 and 9 in the portion of the stem section adapted to fit in the socket of the bowl sections.

It is characteristic of my improvement that the cooling of the smoke whether by contact with the wall of the small passage 1, its repeated expansions and the introduction of air, is effected prior to its entrance into the pocket or within the latter. It is also characteristic of my improvement that the smoke and air flow in opposite directions to the point of meeting at the port 5, which having a capacity greater than the combined capacities of the passages through which the smoke and air flow, will afford ample opportunity for the thorough commingling of the two.

I claim herein as my invention:

1. A pipe having in combination a bowl and stem, said stem having a main smoke passage of small substantially uniform caliber connected to the bowl, and with a pocket of large capacity relative to the passage, a smoke reversing passage extending from the main passage and arranged to deliver the smoke into the rear end of the pocket and to direct it toward the forward end, a portion of the reversing passage between its ends being made of larger diameter than the main passage, and an outlet passage extending from the rear end of the pocket through the mouth piece of the stem.

2. A pipe having in combination a bowl and stem, said stem having a main smoke

passage of substantially uniform small cross-sectional dimensions extending from the bowl, a pocket of large capacity relative to said passage and connected thereto, and an outlet passage extending from the pocket, and means for introducing air into the stream of smoke prior to its entrance into the pocket and in opposition to the direction of flow of the smoke.

3. A pipe comprising a bowl and stem portion and a mouth piece portion, said stem portion being bored to provide a smoke passage leading from the bowl, an expansion chamber, and a reverse passage connecting the first passage and chamber, and means providing for the admission of air to mix with the smoke prior to its entrance into the expansion chamber and controlled by the adjustment of the mouth piece.

4. A pipe having in combination a bowl, a stem formed in sections, a pocket formed in the bowl section of the stem, a main smoke passage extending from the bowl to the pocket the pocket being of large capacity relative to said passage, an outlet passage extending from the pocket and through the mouth section of the stem, means for introducing air into the stream of smoke prior to its entrance into the pocket, the inflow of air being controlled by the adjustment of one of the stem sections relative to the other.

5. A pipe having in combination a bowl and stem, said stem having a main smoke passage extending from the bowl, a pocket of large capacity relative to said passage and connected thereto, and an outlet passage extending from the pocket, and means for directing a stream of air into the smoke in the main passage at an angle to the direction of flow of the smoke.

6. A pipe having in combination a bowl and a stem, said stem having a main smoke passage connected to the bowl, a pocket of large capacity relative to said passage, a smoke reversing passage connecting the main passage to the rear end of the pocket, a passage for introducing air into the main passage adjacent to its connection with the reversing passage, and an outlet passage extending from the rear end of the pocket.

7. A pipe having in combination a bowl and a stem, said stem having a main smoke passage connected to the bowl, a pocket of large capacity relative to said passage, a smoke reversing passage connecting the main passage to the rear end of the pocket, said reversing passage having the portion adjacent to the main passage of larger caliber than the main passage, a passage for introducing air into the main passage adjacent to its connection with the reversing passage, and an outlet passage extending from the rear end of the pocket.

8. A pipe having in combination a bowl and a stem formed in two sections, one section having a main passage of small caliber connected to the bowl, and having a pocket of large capacity relative to the main passage and open at its rear end, the outer section having a plug-like extension adapted to close the rear end of the pocket, and having a passage adapted to register at one end with a port extending from the passage in the first section and to direct smoke toward the front end of the pocket, said outer section having an outlet passage extending from the end of the plug to the mouth piece.

9. A pipe having in combination a bowl and a stem formed in two sections, one section having a main passage of small caliber connected to the bowl, and a pocket of large capacity relative to said main passage and open at its rear end, and connected to the main passage by a port of larger caliber than the main passage, said stem section being also provided with an air inlet passage connected to the main passage at a point adjacent to the port from the latter, the outer section having a plug-like extension adapted to fit tightly in the rear end of the pocket and provided with angular passage, one end of which will register with the said port from the main passage in the first section, and the opposite end opening through the end of the plug, said outer section having an outlet passage extending from the end of the plug to the mouth piece.

10. A pipe having in combination, a bowl and a stem formed in two sections, one section having a main passage of small caliber connected to the bowl, and a pocket of large capacity relative to said main passage and open at its rear end, and connected to the main passage by a port of larger caliber than the main passage, said stem section being also provided with an air inlet passage connected to the main passage at a point adjacent to the port from the latter, the outer section having a plug-like extension adapted to fit tightly in the rear end of the pocket and provided with angular passage, one end of which will register with the said port from the main passage in the first section, and the opposite end opening through the end of the plug, said outer section having an outlet passage extending from the end of the plug to the mouth piece, and having a shoulder adapted to regulate the inflow of air.

In testimony whereof, I have hereunto set my hand.

JAMES T. SARGENT.

Witnesses:

ALICE A. TRILL,
THOS. B. JOYCE.