March 25, 1958 A. J. GEOFFRION 2,827,905

SMOKING DEVICE

Filed Oct. 15, 1954

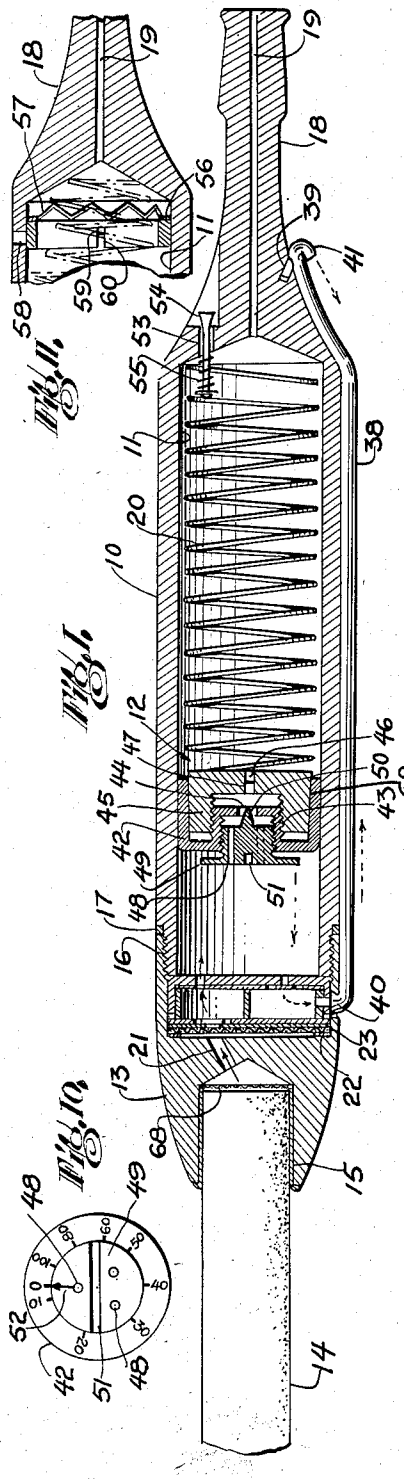


Fig. 1.

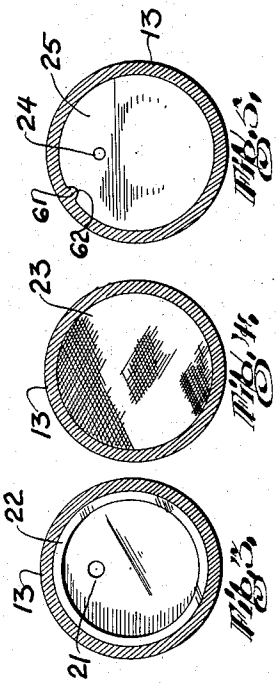


Fig. 3.

Fig. 4.

Fig. 5.

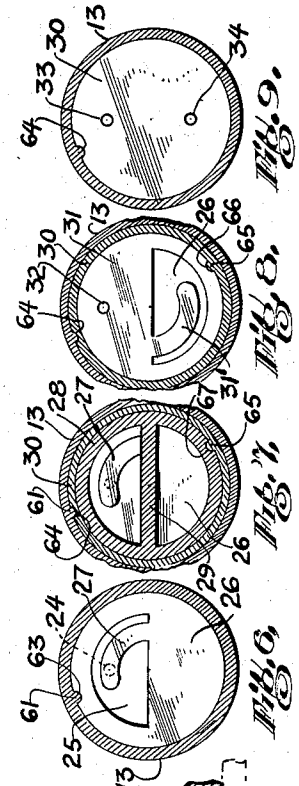


Fig. 6.

Fig. 7.

Fig. 8.

Fig. 9.

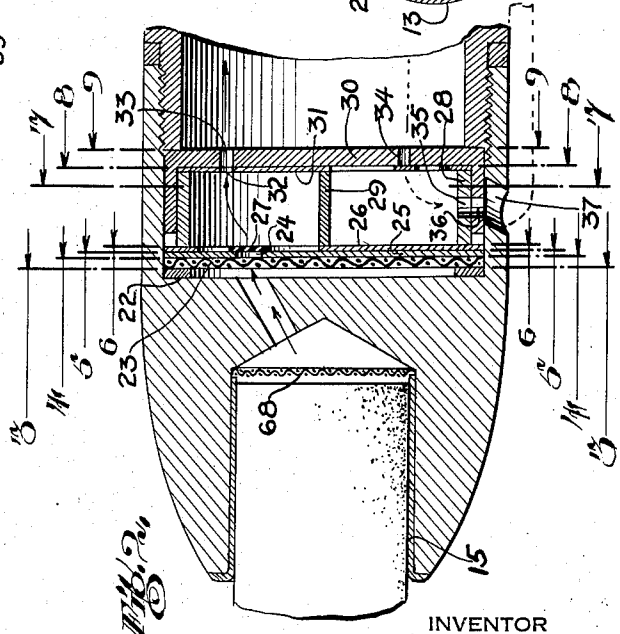


Fig. 2.

Fig. 10.

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2,827,905

SMOKING DEVICE

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Application October 15, 1954, Serial No. 462,458
12 Claims. (Cl. 131—198)

This invention relates to smoking devices and more particularly relates to a smoking device which permits the user to eliminate or diminish at his election the effect of entry of smoke from burning tobacco into the mouth and oral passages of the user.

It is an object of this invention to provide an improved smoking device whereby an habitual smoker can go through the motions of lighting or puffing on a cigarette or other article to be smoked and thereby pacify the impulses resulting from habit without, however, having the smoke enter his mouth or whereby the smoker can decrease the amount of smoke entering his mouth as compared to the amount of smoke which would be drawn into the mouth if the device of this invention were not used.

It has heretofore been proposed to provide a smoking device comprising a holder for a cigarette, cigar or the like, a mouthpiece and smoke passage means therebetween comprising a chamber which is separated by a diaphragm into a first compartment in communication with the holder and a second compartment in communication with the mouthpiece, the diaphragm being made of readily deformable material and being resiliently maintained to resiliently oppose suction applied to the second compartment from the mouthpiece whereby when such suction is applied it is communicated to the first compartment for drawing smoke therein from the holder and whereby upon release of the suction the diaphragm returns to its normal position with expulsion of smoke from the first compartment. In addition to the smoke passage providing communication between the holder and the first compartment, there may be a separate outlet passage from the first compartment to the atmosphere and suitable one-way valve means for the passages so that smoke may alternately be sucked into the first compartment through one passage and ejected to the atmosphere through the other. It is an object of the invention to provide improvements on smoking devices of this kind.

Features of this invention relate to the provision of a by-pass through or about the barrier member whereby, if desired, a controlled amount of smoke drawn into the device may be permitted to pass through the device into the mouth of the user. Preferably the amount of smoke which is thus by-passed may be adjusted according to the desire of the user at the time.

According to another feature of this invention, when the barrier member reaches the extremity of its rearward movement a relief valve is caused to be opened for admission of air into the rear compartment so that the user may continue to apply suction after the barrier member has reached the extremity of its rearward movement without having the flow of air or smoke from the device suddenly cut off. In this way the device is accommodated to taking either short puffs or longer puffs even though the overall size of the device is held down to one which is light in weight and convenient to handle.

Another feature of this invention resides in the provision of the barrier member in the form of a piston and in that means is provided whereby the fit of the piston within the chamber in the body portion of the device is adjustable so that the user may regulate its response to suction according to individual preference. Moreover, the device may be readily disassembled for making adjustments or for cleaning.

Another feature of this invention resides in the provision in the passage for exhausting smoke to the atmosphere from the forward compartment of an exhaust valve box within the device wherein the exhaust valve for the exhaust passage is located. Other features of this invention reside in the valve compartment for controlling the inlet and outlet passages for the forward compartment and in the use therein of ported parts and flap valve means for controlling the ports. Other features relate to the provision of means whereby smoke emitted from the forward compartment is discharged into the atmosphere adjacent the mouth of the user in very much the same way as though the smoke had been drawn into the mouth of the user.

The foregoing and other objects, features and advantages of this invention will be apparent in connection with the following description of the illustrative embodiments of this invention which are shown in the accompanying drawings, wherein:

Fig. 1 is a longitudinal cross section of a smoking device embodying this invention;

Fig. 2 is a section similar to Fig. 1 of the forward end of the smoking device showing the parts on a larger scale;

Figs. 3 to 9 are transverse sections taken on the correspondingly numbered lines shown in Fig. 2, the scale, however, being that of Fig. 1;

Fig. 10 is a front elevation of the piston; and

Fig. 11 is a fragmentary longitudinal section showing an alternative type of relief valve means which may be employed according to this invention.

Referring to the embodiment of this invention shown in Figs. 1 to 10, the smoking device comprises a body portion **10** which has a cylindrical inner surface **11** that provides a smoke chamber within which there is a slidable piston **12**. Secured to the forward end of the body portion **10** there is the nose piece **13** which includes a socket suitable for holding a cigarette **14**. The socket at the forward end of the nose piece in which the cigarette is inserted preferably is provided with a metal ferrule **15**. While the device is intended primarily for use in smoking cigarettes, nevertheless by suitable change in the configuration of the socket in the nose piece the device could be used for holding a cigar. Moreover, by enlarging the cavity at the forward end of the nose piece tobacco which has not been preformed into a cigar, cigarette or the like could be inserted for smoking. Accordingly, the smoking device of this invention may be used in the smoking of any type of body of tobacco or tobacco substitute.

The nose piece **13** is secured to the body portion **10** by threading **16**. An ornamental ring **17** is employed at the region of the juncture of the external surfaces of the body portion and nose piece. Any other securing means may likewise be employed, such as frictionally engaged telescoping surfaces.

At the rearward end of the device there is secured to the body portion a mouthpiece **18** which has a conduit **19** extending therethrough. When suction is applied by the user through the conduit **19** to the rearward compartment of the smoke chamber this tends to draw the piston **12** rearwardly. The piston **12** is normally urged toward the forward end of the smoke chamber by suitable resilient means such as a very light spring **20** that has sufficient force for moving the piston **12** forwardly without increasing substantially the amount of suction that is normally employed in drawing smoke through a cigar or cigarette.

When the piston **12** is retracted, smoke is drawn into the forward compartment in front of the piston. When the piston is permitted to return to its original forward position under the influence of the spring **20** the smoke is exhausted to the atmosphere. The smoke is selectively drawn into the forward compartment and exhausted to the atmosphere by suitable one-way valve means for con-

trolling the passage means through which the smoke is directed. In the preferred form thereof smoke from the cigarette or other body of tobacco is drawn from the base of the socket in the nose piece through the passage **21**. The rearward end of the nose piece is recessed to receive a spacing ring **22** for holding a filtering screen **23** in spaced relation to the forward end of the recessed portion so that smoke may be distributed about the screen **23** for passage therethrough. The spacing ring **22** and the screen **23** are shown separately in Figs. 3 and 4 respectively.

After having passed through the screen **23** the smoke passes through the opening **24** in a disc **25** shown in Fig. 5. Contiguous with the disc **25** there is the valve disc **26** which includes a flap member **27**, the terminal end of which is adapted to overlie the opening or port **24** in the disc **25**. The valve disc **26**, or at least the flap member **27** thereof, is composed of easily flexed material such as rubber or soft plastic material. The member **27** is free to move rearwardly when the piston **12** is retracted so that smoke can readily be admitted through the opening **24**. However, when the piston **12** is moved forwardly under the influence of the spring **20**, the flap member **27** closes the opening **24** so as to prevent the smoke from being expelled through the passage **21** to the holding means for the cigarette or the like. The flap disc **26** is shown separately in Fig. 6.

Rearwardly of the valve disc **26** there is disposed a ring **28** which has a transverse partition **29** that divides this portion of the device into an inlet exhaust valve box and an outlet exhaust valve box. The ring **28** fits within the side wall of the cup-shaped part **30** which is slidably disposed within and adjacent the forward end of the recess in the nosepiece and with its transversely disposed closed end or bottom plate substantially spaced from the forward end of the recess. Between the bottom of the cup-shaped part **30** and the ring **28** there is disposed an exhaust valve disc **31** having a flap member **31'** similar to flap member **27**. The exhaust valve disc **31** has a port **32** therein which is in registration with the port **33** in the transversely disposed bottom plate of the cup-shaped part **30** so that smoke may freely pass from the inlet exhaust box which is provided by the ring **28**, the partition **29** and the parts **25** and **30** on the opposite sides, respectively, of the ring **28** in the region above the partition **29** when the device is in the position shown in Figs. 1 and 2. The cup-shaped part **30** has a port **34** therein and the flap member **31'** of the exhaust valve disc **31** is adapted to overlie the port **34** within the exhaust valve box that is provided by the ring **28**, the partition **29** and the parts **25** and **30** on the opposite sides, respectively, of the ring **28** in the region below the partition **29** when the device is in the position shown in Figs. 1 and 2. When the piston **12** is urged forwardly under the influence of the spring **20**, the flap member **31'** permits the smoke to pass through the port **34** into the exhaust valve box. However, when the piston is moved rearwardly responsive to suction applied by the user, the flap member **31'** closes the port **34** so as to prevent suction of air into the exhaust valve box and thence into the forward compartment of the smoke chamber in front of the piston **12**. The ring member **28**, the flap valve disc **31** and the cup-shaped part **30** are shown in Figs. 6, 7, 8 and 9 respectively.

In order to hold the parts comprising the inlet and exhaust passage means and the one-way valve means for controlling these passage means in proper alignment any suitable means may be employed such as the key ridge **61** which protrudes from the inner surface of the recess in the nose piece **13** and which coacts with the notch **62** in the disc **25**, the notch **63** in the valve disc **26** and the notch **64** in the external surface of the cup-shaped part **30**. The inner surface of the side wall of the cup-shaped part **30** is provided with the key ridge **65** which coacts with the notch **66** in the valve disc **31** and the notch **67** in the peripheral surface of the ring **28**.

The portion of the ring **28** in the region of the exhaust valve box has a port **35** therein which is in registration with the port **36** in the side wall of the cup-shaped member **30** and these ports likewise are in registration with the port **37** in the side wall of the nose piece **13**. Smoke is, therefore, free to be exhausted to the atmosphere from the exhaust valve box through these ports. If desired, the smoke may be released to the atmosphere where these ports are located. A conduit or passage means **38** is provided whereby smoke expelled from the forward compartment of the smoke chamber may be directed so as to be released adjacent the mouthpiece. This conduit may have a hook or barblike part **39** adjacent the rearward end thereof which is adapted to be hooked into a corresponding recess in the mouthpiece **18** so that when the tube **38** is so held the forward end **40** thereof may be snapped into the port **37** in the side wall of the nose piece **13**. When the tube **38** has thus been secured in place smoke expelled from the device will emerge from the curved rearward end **41** thereof adjacent the mouthpiece in very much the same way as though the smoke had been taken into the mouth of the user and expelled while puffing on a cigarette.

The piston **12** preferably is such that the size of its circumference is adjustable. The external surface of the piston is provided by the skirt of the part **42**. The part **42** also includes a central portion **43** which is both internally and externally threaded. The central portion **43** has an opening **44** therein. The cup-shaped part **45** has a tapered annular side wall **69**, the inner surface of which is threaded for threaded engagement with the external threading of the central portion **43** of the part **42**. The rear surface of a part **45** has a slot **46** by which the part **45** may be rotated by using a dime as a tool. However, any other device for engagement with a suitable tool may be used. By rotating the part **45** relative to the part **42** the skirt of the part **42** may be expanded and contracted so that its circumference may be adjusted for providing the desired fit with the inner cylindrical surface **11** of the body portion **10** of the smoking device. In this way the freedom with which the piston is slidable within the cylindrical surface **11** may be adjusted as desired in an attempt to prevent any substantial passage of smoke between the external surface of the skirt of the piston and the inner cylindrical surface **11**.

When it is desired that at least some of the smoke which is drawn into the device shall pass into the rear compartment and thence through the conduit **19** into the mouth of the user, suitable by-pass means is provided in the piston itself. This by-pass means comprises the opening **44** in the central portion **43** of the part **42**, the opening **47** in the part **45** and the ducts **48** in the plug **49** which is in threaded engagement with the internal threading of the central portion **43** of the part **42**. For the purpose of making the by-pass means adjustable the plug **49** is provided with the tapered projection **50** which coacts with the opening **44** to provide a needle valve that is capable of adjustment by rotation of the plug **49** relatively to the part **42**. So that this adjustment may be readily made the plug **49** is provided with a dime slot **51**. By suitably adjusting the needle valve by rotation of the plug **49** any desired amount of smoke within limits may be permitted to pass through the piston so as to be carried through the device to the mouth of the user. As shown in Fig. 10, suitable calibrations may be employed for indicating the quantity of smoke which is permitted to pass through the device, e. g., by the employment of the arrow **52** on the plug **49** which may be brought opposite suitable indicia on the exposed end surface of the part **42**.

For the purpose of permitting the user to take either short puffs or long puffs in a manner that may be natural in smoking a cigarette either with or without a conventional cigarette holder, means is provided for permitting admission of air into the rear compartment when the piston **12** has been fully retracted. For this purpose the

embodiment shown in Figs. 1 to 10 includes a duct **53** having a valve **54** therein that normally is held in closed position by a spring **55** to control the admission of air through the duct **53** into the rear compartment. When the piston **12** is fully retracted the back of the piston strikes the forwardly projecting end of the valve **54** so as to open the valve and thereby permit the admission of air through the duct **53** so that the user can continue to draw through the conduit **19** in the mouthpiece air or air commingled with smoke.

In Fig. 11 alternative air valve means is shown in the form of a ring **56** which is slidable within the cylindrical inner surface **11** of the body portion and which is normally held slightly spaced forwardly of the rearward end of the cylindrical surface **11** by the easily compressible spring member **57** so as to close off the port **58** which leads to the outer atmosphere. As with the type of valve shown in Fig. 1, the modified form of valve shown in Fig. 11 is operable by the back of the piston striking the ring **56** so as to wholly or partially uncover the port **58**. In order to hold the ring **56** in position for normally covering the port **58** any suitable means may be used such as one or more pins **59** removably held by the side wall of the body portion **10** and the inner end of which is freely slidable in the slot **60** in the ring **56** to the extent determined by the rearward end of the slot.

While the device may include the screen **23** in the position shown and hereinabove described, a smoke filtering screen may, if desired, be employed at the base of the socket in the nose piece **13** as illustrated by the screen **68** which also is shown in Figs. 1 and 2. Similarly other modifications in the smoking device of this invention may be made as compared with the particular device that has been disclosed in the accompanying drawings and in the foregoing description thereof without departing from the scope of this invention.

In use, when a cigarette, for example, is placed in the socket it may be lighted in the usual way while the user applies suction with his mouth at the mouthpiece to aid in getting it lighted. When the passage through the piston is completely closed the resulting smoke will merely fill the smoke chamber during retraction of the piston and when the suction is discontinued the smoke will be expelled by the normal tendency of the piston to return to its original position. Upon thereafter intermittently sucking on the device in the usual way during smoking, the action will be repeated and the cigarette will be consumed in substantially the same manner and with substantially the same appearance as though the smoke actually entered the user's mouth.

On the other hand, if the passage through the piston is adjusted so as to be in fully opened position, the device may be used as a conventional cigarette holder with the smoke passing therethrough to the mouth of the user and with little or no incidental movement of the piston. Thus one is enabled, if he should desire to do so, to smoke during a particular day a stated number of cigarettes in the conventional way and then, by making a simple adjustment, continue to smoke without, however, having the smoke enter his mouth.

Alternatively, the device may be used to permit some smoke, but only a portion thereof, to enter the mouth of the user and the device is capable of adjustment for any proportion desired between when no smoke passes through to the user's mouth and when all the smoke that is drawn through the cigarette passes through to the user's mouth. In such a case, the smoke permitted to pass through to the user's mouth may be mixed with air, and the piston will be partially or wholly retracted depending on the duration of the drag and the proportion of the smoke that is permitted to pass through the piston. In this way the user may reduce under predetermined control and to any desired extent the amount of smoke permitted to enter his mouth. Of course, each time the applied suction is discontinued and the piston returns to its original position smoke in the forward compartment will be pushed out of the device except for a very small amount that may pass through the passage in the piston while the piston is returning to its original position.

During any of the foregoing ways of using the device of this invention the duration of suction or drag may be effected according to whatever is natural to the user for, as aforesaid, if the piston becomes fully retracted before the applied suction is discontinued the passage to the atmosphere becomes automatically opened so that suction of air, or smoke and air, may continue.

I claim:

1. In a smoking device comprising a body portion having a hollow interior providing a smoke chamber, holding means secured to said body portion adjacent the forward end thereof for holding a body of tobacco, a mouthpiece secured to said body portion at the rearward end thereof, a barrier member which divides said chamber into a forward compartment and a rear compartment and which is movable relative to said chamber for varying the capacity of said compartments, a conduit extending through said mouthpiece providing communication between said rear compartment and an aperture adjacent the rearward end of said mouthpiece, first passage means providing a passage for smoke from said holding means into said forward compartment, one-way valve means for permitting passage of smoke from said holding means into said forward compartment through said first passage means and for preventing passage of smoke from said forward compartment to said holding means, second passage means providing a passage for smoke from said forward compartment to the atmosphere, one-way valve means in said second passage means for permitting passage of smoke from said forward compartment to the atmosphere and for preventing passage of air in the opposite direction through said second passage means into said forward compartment, and resilient means that normally urges said barrier means for diminishing the capacity of said forward compartment with expulsion of smoke through said second passage means and that is yieldable responsive to suction applied through said conduit for increasing the capacity of said forward compartmena and thereby drawing smoke therein from said holding means through said first passage means, the improvement comprising duct means providing communication between the atmosphere and the interior of said rear compartment, valve means which controls passage of air from the atmosphere through said duct means, means for maintaining said valve means normally closed and means for opening said valve means responsive to movement of said barrier means in the direction for diminishing the capacity of said rear compartment when said barrier means is adjacent the extremity of such movement for permitting the drawing of air through said duct means and said conduit into the mouth of a user.

2. In a smoking device comprising a body portion having a hollow interior providing a smoke chamber, holding means secured to said body portion at the forward end thereof for holding a body of tobacco, a mouthpiece secured to said body portion at the rearward end thereof, a barrier member which divides said smoke chamber into a forward compartment and a rear compartment and which is movable relative to said chamber for varying the capacity of said compartments, a conduit extending through said mouthpiece providing communication between said rear compartment of said chamber and an aperture adjacent the rearward end of said mouthpiece, first passage means providing a passage for smoke from said holding means into said forward compartment, one-way valve means in said first passage means for permitting passage of smoke from said holding means into said forward compartment and for preventing passage of smoke from said forward compartment to said holding means, second passage means providing a passage for smoke from said forward compartment to the atmos-

phere, one-way valve means in said second passage means for permitting passage of smoke from said forward compartment to the atmosphere and preventing passage of air in the opposite direction through said second passage means into said forward compartment, resilient means that normally urges said barrier means for diminishing the capacity of said forward compartment with expulsion of smoke through said second passage means and that is yieldable responsive to suction applied through said conduit for increasing the capacity of said forward compartment for drawing smoke therein from said holding means through said first passage means, the improvement comprising a by-pass passage communicating between said forward compartment and said rear compartment whereby a portion of the smoke drawn from said holding means into said forward compartment passes through said by-pass into said rear compartment and thence into the mouth of a user.

3. In a smoking device having a holder for a body of tobacco and a mouthpiece at opposite ends, smoke passage means therebetween and smoke control means in said passage means, the improvement wherein said smoke control means comprises a wall enclosing an elongated chamber in said smoke passage means, a piston slidably mounted within said chamber which divides said chamber into a forward compartment in communication with said holder and a rear compartment in communication with said mouthpiece, resilient means which normally maintains said piston adjacent the forward end of said chamber and which is yieldable responsive to suction applied from the mouth of a smoker, one-way valve means in said smoke passage means which permits the passage of smoke from said holder into said forward compartment and prevents passage of smoke in the opposite direction, outlet passage means for the passage of smoke from said forward compartment to the atmosphere, and one-way valve means in said outlet passage means which permits passage of smoke from said forward compartment to the atmosphere and prevents passage of air in the opposite direction.

4. A smoking device according to claim 3 wherein said piston has a passage therethrough for permitting smoke from said forward compartment to pass to said rear compartment and adjusting means for adjusting the capacity of said passage for smoke passing therethrough.

5. A smoking device according to claim 4 wherein said adjusting means has a scale associated therewith indicative of different amounts of smoke passing therethrough at different settings thereof.

6. A smoking device according to claim 3 which includes a duct for admitting air into said rear compartment, valve means for controlling passage of air through said duct, means for maintaining said valve means normally closed, and means for opening said valve means responsive to rearward movement of said piston when said piston is adjacent the rearward extremity of its rearward movement for admitting air into said rear compartment.

7. A smoking device according to claim 6 wherein said piston comprises a skirt member and means for adjusting said skirt member for obtaining desired sliding contact with the inner surface of said chamber.

8. A smoking device according to claim 3 which includes a transversely disposed plate located at the forward end of said chamber and at the rear of a valve compartment disposed between said plate and said holder, said plate having therein an inlet port disposed in said smoke passage means communicating with said holder and an outlet port disposed in said outlet passage means, and a partition in said valve compartment separating said smoke passage means from said outlet passage means, said one-way valve means in said smoke passage and in said outlet passage, respectively, being within said valve compartment.

9. A smoking device according to claim 3 which includes a transversely disposed plate located at the forward end of said chamber and at the rear of a valve compartment between said plate and said holder, said plate having therein an inlet port disposed in said smoke passage means communicating with said holder and an outlet port disposed in said outlet passage means, an outlet flap valve comprising said outlet port and a flexible flap member overlying said outlet port within said valve compartment, a second inlet port in said smoke passage means at the forward end of said valve compartment, an inlet flap valve comprising said second inlet port and a flexible flap member overlying said second inlet port within said valve compartment, and means within said valve compartment for separating said outlet passage means from said smoke passage means.

10. A smoking device according to claim 3 which includes a plate removable from the rear of said holder, a smoke filtering screen disposed between said plate and said holder leaving a smoke distributing space between it and the rear of said holder, said smoke passage means communicating between said holder and said chamber comprising said screen and a port in said plate behind said screen.

11. A smoking device according to claim 3 wherein said discharge passage comprises a conduit extending from adjacent the forward end of said forward compartment to said mouthpiece for discharge of smoke from the forward compartment into the atmosphere adjacent and in front of the mouth of a user.

12. A smoking device according to claim 3 which comprises a passage through said piston for permitting smoke from said forward compartment to pass to said rear compartment, adjusting means for adjusting the capacity of said passage for smoke passing therethrough, a skirt member comprised in said piston, means for adjusting said skirt member for obtaining desired sliding contact with the inner surface of said chamber, a duct for admitting air into said rear compartment, valve means for controlling passage of air through said duct, means for maintaining said valve means normally closed, means for opening said valve means responsive to rearward movement of said piston when said piston is adjacent the rearward extremity of its rearward movement, a first plate member transversely disposed and removable from the rear of said holder, a smoke filtering screen between said plate member and said holder having a smoke distributing space between it and the rear of said holder, said smoke passage means communicating between said holder and said chamber comprising said smoke filtering screen and a port in said first plate member behind said screen, said one-way valve in said smoke passage means comprising said port and a flexible flap member covering said port on the rear surface of said first plate member, a second plate member disposed transversely substantially rearwardly spaced from said first plate member, said second plate member having an inlet port disposed in said smoke passage means and an outlet port disposed in said outlet passage means, and said one-way valve means in said outlet passage means comprising a flexible flap member adapted to cover said outlet port at the front surface of said second plate member, and partition means disposed between said first and second plates for separating said outlet passage means from said smoke passage means communicating between said holder and said chamber.

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CERTIFICATE OF CORRECTION

Patent No. 2,827,905 March 25, 1958

Arthur J. Geoffrion

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 5, line 20, after "port 58." insert the following sentence: -- While any readily compressible spring means may be used for providing the spring member 57, that shown in Fig. 11 consists of a ring of thin-gauge zig-zag spring metal which is adapted to be flattened sufficiently to permit the opening of the port 58 when light pressure is applied thereto by the ring 56. --; column 6, line 43, strike out "mena" and insert -- ment --; column 7, lines 63 and 64, strike out "includes" and insert instead -- comprises --.

Signed and sealed this 19th day of August 1958.

(SEAL)
Attest:

KARL H. AXLINE
Attesting Officer

ROBERT C. WATSON
Commissioner of Patents