

[54] CIGARETTE HOLDER STRUCTURE

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[22] Filed: Feb. 1, 1973

[21] Appl. No.: 328,638

[30] Foreign Application Priority Data

Feb. 2, 1972 Japan..... 47-14430  
 Mar. 25, 1972 Japan..... 47-35297  
 Aug. 26, 1972 Japan..... 47-99886

[52] U.S. Cl. .... 131/262 B

[51] Int. Cl. .... A24f 7/04

[58] Field of Search ..... 131/182, 194, 240, 241, 131/260, 215 B, 262 B, 261

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[57] ABSTRACT

A cigarette holder structure which comprises a body consisting of a holder member having a hole there-

through adapted to be securely connected to a mouthpiece member having a hole therethrough which cooperates with said holder member at its one end to form a chamber in the body at its intermediate portion; a support member having a central portion and a peripheral wall extending from the periphery of said central portion in the direction to the other end of said holder member and adapted to be securely disposed in said chamber leaving a space between said peripheral wall of the support member and the inner wall of said chamber and to receive a cigarette keeping a distance from said central portion; said central portion of the support member having an opening passing longitudinally of said chamber; a permanent magnet having one end with an elongated recess and the other end with an elongated recess and adapted to be disposed in said chamber and secured by a securing means provided in said chamber; said central portion of the support member abutting against the one end of said permanent magnet thereby to form a passage between said elongated recess and said space between said peripheral wall of the support member and the inner wall of said chamber; said space communicating with said elongated recess of the other end of the magnet through passage portions longitudinally formed between the inner wall of said chamber and the periphery of said permanent magnet; said elongated recess of the other end of the magnet communicating with a mouth of said mouthpiece member. With such structure, poisonous substances of tobacco smoke can be effectively eliminated.

8 Claims, 7 Drawing Figures

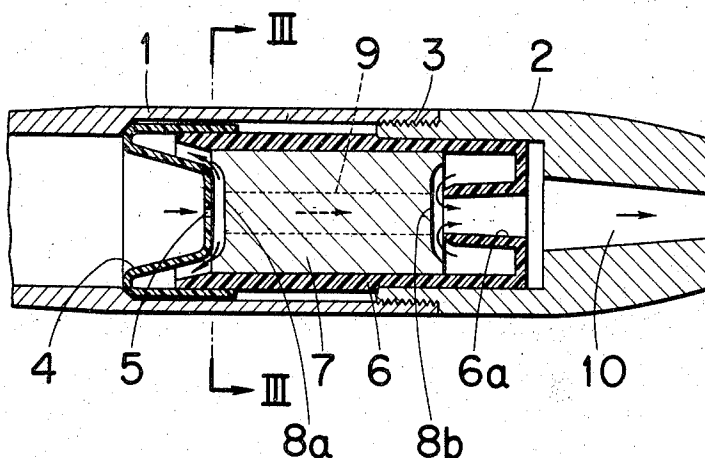


FIG. 1

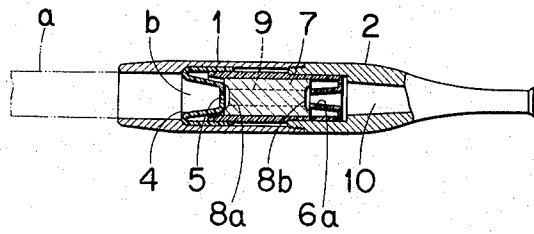


FIG. 2

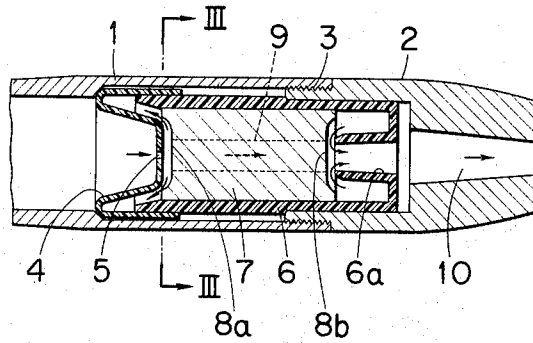


FIG. 3

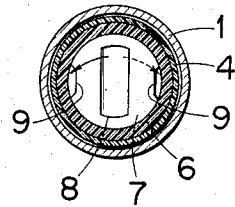


FIG. 4

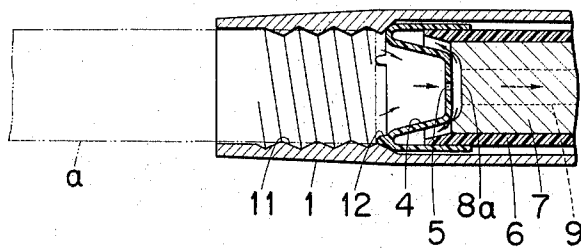


FIG. 5

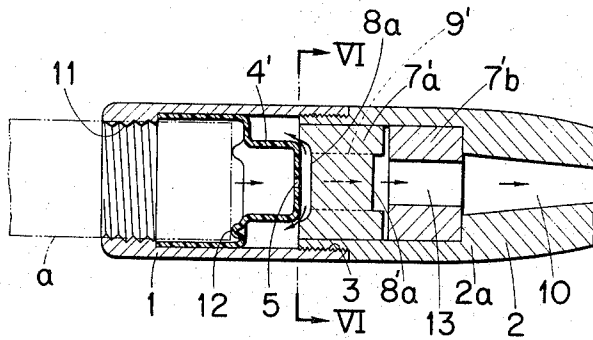


FIG. 6

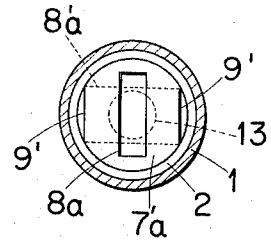
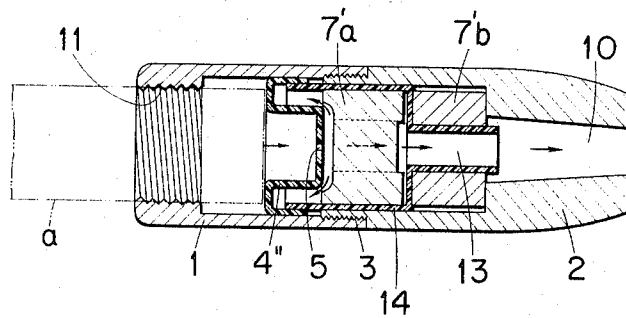


FIG. 7



## CIGARETTE HOLDER STRUCTURE

This invention relates to a cigarette holder, and more particularly to a magnetic cigarette holder capable of effectively protecting a smoker from poisoning.

It has been well known that tobacco smoke contains various poisonous substances. Although nicotine in the original leaf of tobacco is bounded to organic acids, the nicotine is released or liberated in smoking. Besides nicotine, tobacco smoke contains pyridine compounds, ammonia, carbon dioxide, carbon monoxide, organic acids, ketones and aldehydes. It also contains the so-called tobacco tar, which is suspected of bringing about cancer of the lung. In general, it has been found that cigarette smoking is more dangerous to health than cigar smoking and pipe smoking.

Therefore, there have been proposed various types of cigarette holders for preventing the poisonous substances contained in tobacco smoke from being absorbed into a human body. For example, many kinds of cigarette holders having some kind of filter incorporated therein. Such filter-type cigarette holder is, as well known, insufficient for completely removing poisonous substances from tobacco smoke to be absorbed in the human body. Illustratively stated, all the conventional filter-type cigarette holders have such a so-called one-way type structure that poisonous substances such as nicotine, tar and the like are removed only on the side of suction of the cigarette holder and therefore the removing effect or efficiency of the filter is rapidly decreased according to increase in the number of cigarettes smoked. Generally, it can be said that the number of cigarettes to which one piece of the conventional filter-type cigarette holder is effective to some degree is at most about 5.

Furthermore, there have also been proposed some kinds of magnetic type cigarette holders having a magnet incorporated therein (See, for example, Japanese Utility Model Registration Application Publication Nos. 23862/1960 and 12871/1972 and Japanese Patent Application Publication No. 1117/1970). These magnetic type cigarette holders have been devised by utilizing the phenomenon that magnetism captures electrically charged particles (This phenomenon is induced from the phenomenon of the so-called Van Allen Radiation Belts). By burning tobacco, particles contained in the produced smoke are caused to be charged. Thus, the charged particles of poisonous substances are captured by passing through the magnetic field. However, the conventional magnetic type cigarette holders have the disadvantage that in order to enhance the magnetic effect, the magnet to be used is necessarily large in weight as well as in size and, in addition, removal of tar is very difficult. Due to such disadvantage, the conventionally proposed magnetic type cigarette holder can never be practically used.

In order to overcome such disadvantage and to provide a practically useful magnetic type cigarette holder which is extremely effective for removing poisonous substances of tobacco smoke during the course of travelling of smoke in the cigarette holder, the present inventor has made extensive and intensive studies. As a result of this, it has been found that, by employing a new structure of the interior of the holder in which structure passages for smoke are designed so that tobacco smoke is ingeniously led in the holder from a cigarette holding portion to a mouthpiece portion, the poi-

sonous substances of the smoke such as nicotine, tar and the like can be effectively and completely removed. The present invention has been made, based on such novel finding.

Accordingly, it is an object of the present invention to provide a novel magnetic cigarette holder structure capable of effectively removing the poisonous substances of tobacco smoke.

Another object of the present invention is to provide a cigarette holder structure of the character described, which can be used for a number of cigarettes.

Still another object of the present invention is to provide a cigarette holder structure of the kind described, which can be easily cleaned when exhausted and hence, can be employed semi-permanently.

A further object of the present invention is to provide a cigarette holder structure of the kind described above, which can be easily mass-produced and sold at low cost.

The foregoing and other objects, features and advantages of the present invention will be apparent to those skilled in the art from the following detailed description taken in connection with the accompanying drawings in which:

FIG. 1 is a view of a magnetic cigarette holder structure embodying the present invention, with a main portion shown in longitudinal cross section;

FIG. 2 is an enlarged longitudinal cross-sectional view of a main portion of the structure shown in FIG. 1;

FIG. 3 is a sectional view taken along the line III—III in FIG. 2;

FIG. 4 is a sectional view of a main portion of another embodiment of the present invention;

FIG. 5 is a sectional view of a main portion of still another embodiment of the present invention;

FIG. 6 is a sectional view taken along the line VI—VI in FIG. 5; and

FIG. 7 is a sectional view of a further embodiment of the present invention.

In FIGS. 1 to 7 like parts or portions are designated with like numerals or characters.

Essentially, according to the present invention, there is provided a cigarette holder structure which comprises a body consisting of a holder member having a hole therethrough adapted to be securely connected to a mouthpiece member having a hole therethrough which cooperates with said holder member at its one end to form a chamber in the body at its intermediate portion; a support member having a central portion and a peripheral wall extending from the periphery of said central portion in the direction to the other end of said holder member and adapted to be securely disposed in said chamber leaving a space between said peripheral wall of the support member and the inner wall of said chamber and to receive a cigarette keeping a distance from said central portion; said central portion of the support member having an opening passing longitudinally of said chamber; a permanent magnet having one end with an elongated recess and the other end with an elongated recess and adapted to be disposed in said chamber and secured by a securing means provided in said chamber; said central portion of the support member abutting against the one end of said permanent magnet thereby to form a passage between said elongated recess and said space between said peripheral wall of the support member and the inner wall of said

chamber; said space communicating with said elongated recess of the other end of the magnet through passage portions longitudinally formed between the inner wall of said chamber and the periphery of said permanent magnet; said elongated recess of the other end of the magnet communicating with a mouth of said mouthpiece member.

Referring now to FIGS. 1 to 3 there is shown one embodiment of this invention. A cylindrical holder member 1 for receiving therein a cigarette *a* is connected with a mouthpiece 2 at 3 by screwing to form a body of a cigarette holder structure. A support member 4 is disposed in a chamber formed in the body and has a central portion with a small opening and a peripheral wall extending from the periphery of said central portion in such a manner to form a funnel-like shape. The peripheral wall has an end bent as depicted in FIGS. 1 and 2. The bent portion of the peripheral wall is supported by an angular portion. The bent portion is slightly projected from the inner wall and serves to keep the cigarette leaving a space *b* or a distance from the central portion having the opening 5. In the mouthpiece 2 is inserted a cylinder 6 having at its end a bent portion 6*a* to form an annular space between the bent portion 6*a* and the cylinder 6. A permanent magnet 7 having poles of N and S is securely supported by the central portion of the support member 4 and the end of the bent portion 6*a*. As the permanent magnet there may preferably be employed a ferrite in view of its moldability and excellent magnetic property. The both ends of the magnet 7 are provided at its central portion with elongated recesses 8(8*a*, 8*b*) as depicted. In addition, the magnet 7 has formed at its periphery two longitudinal grooves 9, 9 in the opposite relationship. Numerical 10 designates a duct in the mouthpiece member 2.

In using the cigarette holder structure so constructed, smoke from the cigarette *a* is passed, while stagnating within the space *b*, through the opening 5 and branched in the direction of the arrows by means of the elongated recess 8*a* formed on one end of the magnet 7 to enter a space defined by the peripheral wall of the support member between the inner wall of the holder member 1 and the support member 4. The smoke flows against the inner side of the bent portion of said peripheral wall and then is passed through the grooves 9, 9 on the periphery of the magnet 7. Whereupon, the smoke is led to a space defined by the cylindrical bent portion 6*a* through then annular space as depicted and enters into the duct 10.

During the course of such flowing of smoke, the smoke is completely clarified by the action of magnetism radiated from the magnet to make the smoke free from poisonous substances without losing flavor of the tobacco smoke. During the course of flowing led by the elongated recesses 8*a*, 8*b*, the smoke is caused to expand at the space defined by the peripheral wall of the support member 4 and at the space defined by the bent portion 6*a* of the cylinder 6 and, as a result, tar contents are stuck to both the spaces as mentioned above and removed. Thus, a bitter taste is eliminated at a mouth of the mouth-piece to produce a tobacco smoke which is soft and mild and is also free from poisonous substances. In addition, it is to be noted that when a breath is blown from the mouthpiece reversely into the present cigarette holder structure immediately after the smoking operation, the tar content stuck to said spaces

can be blown out of this cigarette holder structure through the opening 5 and therefore there is hardly found accumulation of the tar in the cigarette holder as opposed to the case when the conventional cigarette holder is used. Accordingly, the interior of the present cigarette holder structure can be always kept clean to make it unnecessary to clean the cigarette holder for a long time (corresponding to smoking of over 1,000 cigarettes).

Referring now to FIG. 4, there is shown another embodiment of the present invention. The structure of this embodiment is the same as the embodiment described referring to FIGS. 1 to 3 except for one point. Therefore, in order to avoid repetition of explanation of the same portions, only the differing portion will be described.

The temperature at which tobacco smoking is effected is usually 750° to 950°C. One of the cancer-producing material, 1,2-benzopyrene starts to be produced at about 680°C. The higher the temperature, the amounts of nicotine, tar and the like become also higher. In order to lower the burning temperature of tobacco in smoking, various kinds of devices have been proposed; for example, it has been proposed to provide small openings in a cigarette holder at its duct portions. Yet, the conventional methods are all unsatisfactory in view of effect. As shown in FIG. 4, according to this embodiment of this invention, in order to further enhance the effect of elimination of poisonous substances, a helical groove is provided on the inner overall wall of the holder member 1 at its portion before the position in which the support member 4 is disposed, and a bent portion 12 of the peripheral wall of the support member 4 is provided with a plurality of projections 12. With such construction, a gap between the cigarette *a* and the bent portion 12 of the peripheral wall of the support member is communicated with the outside of the cigarette holder structure. In smoking, a small amount of fresh air is continuously introduced into the opening 5. As a result, smoking rate and burning temperature are lowered to reduce formation of poisonous substances in tobacco smoke.

Referring now to FIGS. 5 and 6, there is shown still another embodiment of this invention. Also in explaining this embodiment, the repetition of description is avoided. A support member 4' has a little different construction from the support member 4 as shown in FIGS. 1 to 3. The peripheral wall longitudinally extends from the periphery of a central portion having a small opening 5 and has at its intermediate portion an angular portion as depicted in FIG. 5. A magnet 7'*a* having at its both ends elongated recesses 8*a* and 8'*a* is disposed directly in the chamber. Adjacent the magnet 7'*a* there is disposed, in repulsive relation with magnet 7'*a*, another magnet 7'*b* having an annular shape with a bore 13 and secured by the inner wall of the mouthpiece 2 at its angular portion 2*a*. The magnet 7'*a* is longitudinally formed at its periphery with flat faces 9', 9' to form a passage between the magnet 7'*a* and the inner wall of the chamber.

With such construction, the poisonous substances in the tobacco smoke can be further stuck to the inner wall of the chamber, due to repulsive magnetism between the magnets 7'*a* and 7'*b*. Furthermore, it is to be noted that, according to the repulsive force, the magnet 7'*a* can be, at its one end having the elongated recess

8a, surely and stably fitted to the central portion of the support member 4' to attain the desired effect.

Referring now to FIG. 7, there is shown a further embodiment of this invention. In the structure shown in FIGS. 5 and 6, when the body is dismantled the holder member 1 and the mouthpiece member 2 are disconnected for purposes of cleaning, for example there is a danger that the magnet 7'a will fly out due to the action of repulsive force. This embodiment is provided in order to avoid such danger. A cartridge 14 preferably made of a synthetic resin is employed for accomodating therein the magnet 7'a to prevent it from flying out when the body is opened. In this embodiment, a different support member 4'' from that of FIGS. 5 and 6 is employed but it is apparent that such support member 4'' has the same effect.

The above embodiments are given only for illustrative purposes and not by way of limitation, and modifications will become evident to those skilled in the art which will fall within the scope of the attached claims.

What is claimed is:

1. A cigarette holder structure comprising a body including a cigarette holding member connected to a mouthpiece member and including a chamber at an intermediate portion of said body, a support member disposed in said chamber, said support member having a central circular shaped portion smaller than said chamber and a peripheral wall extending from the periphery of said central portion in the direction of said cigarette holding member and said peripheral wall diverging outwardly to engage the inner wall of said chamber therefore forming a space between the peripheral wall and the inner wall of said chamber, said peripheral wall being disposed in a manner to provide a space between said central portion and the end of a cigarette held in said cigarette holding member, an opening in said central portion communicating with said chamber, an elongated permanent magnet having a periphery which substantially conforms to the interior of said chamber disposed in said chamber and having disposed in said chamber and having an elongated recess at each end

thereof and longitudinal passage means formed between the inner wall of said chamber and the periphery of said magnet, said magnet and said central portion of said support member positioned within the chamber so that the central portion abuts one end of said magnet forming a passage between the associated elongated recess of the magnet and the space between said peripheral wall of the support member and the inner wall of said chamber, said space communicating with the elongated recess at the other end of the magnet through said longitudinal passage means, and said elongated recess at the other end of the magnet communicating with a mouth portion of said mouthpiece member.

2. A cigarette holder structure as claimed in claim 1, wherein the cigarette holding member comprising a socket portion which is provided on the inner wall thereof with a helical groove.

3. A cigarette holder structure as claimed in claim 1, wherein adjacent said magnet and in repulsive relationship therewith a second permanent magnet is provided having a passage in communication with said mouth portion.

4. A cigarette holder structure as claimed in claim 3, wherein the last named passage comprises a bore formed in said second permanent magnet.

5. A cigarette holder structure as claimed in claim 3, wherein the first said permanent magnet is accommodated in a cartridge.

6. A cigarette holder structure as claimed in claim 5, wherein said cartridge is of a synthetic resin.

7. A cigarette holder structure as claimed in claim 1, wherein said longitudinal passage means comprise a pair of grooves longitudinally formed on the periphery of said magnet.

8. A cigarette holder structure as claimed in claim 1, wherein said chamber is substantially cylindrical and said longitudinal passage means are formed by a pair of flat faces longitudinally disposed on the periphery of the magnet and the inner wall of said chamber.

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