Appeal No. 26-1518

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

RAI STRATEGIC HOLDINGS, INC., R.J. REYNOLDS VAPOR COMPANY, R.J. REYNOLDS TOBACCO COMPANY, RAI SERVICES CO.,

Appellants,

v.

INTERNATIONAL TRADE COMMISSION,

Appellee,

and

BREEZE SMOKE, LLC; ZHUHAI QISITECH CO., LTD.; GUANGDONG QUISITECH CO., LTD.; GUANGDONG FUWO INTELLIGENT MANUFACTURING CO., LTD.; GUANGDONG CELLULAR WORKSHOP ELECTRONICS TECHNOLOGY CO., LTD.; MADURO DISTRIBUTORS, INC., dba The Loon; THESY, LLC, dba Element Vape; SV3 LLC, dba Mi-One Brands; SHENZHEN PINGRAY TECHNOLOGY CO., LTD.; SHENZHEN YANYANG TECHNOLOGY CO., LTD.; SHENZHEN IVPS TECHNOLOGY CO., LTD., SHENZHEN HAN TECHNOLOGY CO., LTD., AMERICAN VAPE COMPANY, LLC; SHENZHEN KANGVAPE TECHNOLOGY CO., LTD.,

Intervenors.

Appeal from the United States International Trade Commission in Investigation No. 337-TA-1410

INTERNATIONAL TRADE COMMISSION'S OPPOSITION TO APPELLANTS' MOTION FOR SUMMARY REVERSAL

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Dated: April 17, 2026

U.S. Patent No. 11,925,202: Claims in Dispute

1. [pre] An electrically-powered, aerosol-generating smoking article comprising:

   [a] an outer housing having two ends;

   [b] a mouthpiece defined at one of the two ends;

   [c] an electrical power source arranged within the outer housing;

   [d] an electrical resistance heater positioned within the outer housing, the electrical resistance heater being configured for electrical connection with the electrical power source;

   [e] a storage compartment defined within the outer housing, the storage compartment being configured for storage of a liquid aerosol-forming material and being arranged such that the liquid aerosol-forming material can be wicked into contact with the electrical resistance heater to volatilize the liquid aerosol-forming material;

   [f] an air passageway through at least a portion of the outer housing, the air passageway being arranged so that air drawn into the outer housing combines with volatilized liquid aerosol-forming material to produce an aerosol that can be drawn into the mouth of a user of the electrically-powered, aerosol-generating smoking article through the mouthpiece; and

   [g] a controller configured to activate current flow through the electrical resistance heater in response to a draw on the electrically-powered, aerosol-generating smoking article.

4. The electrically-powered, aerosol-generating smoking article of claim 1, wherein the aerosol that is produced passes at least partially through the storage compartment before exiting through the mouthpiece.

12. The electrically-powered, aerosol-generating smoking article of claim 1, wherein the electrical resistance heater is configured to allow airflow therethrough.

'202 patent at 32:58-33:18, 33:25-28, 33:53-55 (bracketed letters added).

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Cases **Page(s)**

TABLE OF AUTHORITIES (cont'd)

Cases (cont'd) **Page(s)**

Statutes

TABLE OF AUTHORITIES (cont'd)

Regulations **Page(s)**

U.S. International Trade Commission Proceedings

Rules

I. INTRODUCTION

Reynolds's Motion for Summary Reversal (Dkt. 6, "Mot.Summ.Rev.") should be denied because Reynolds failed to show that its position "is so clearly correct as a matter of law that no substantial question regarding the outcome of the appeal exists." *Joshua v. United States*, 17 F.3d 378, 380 (Fed. Cir. 1994).

Summary disposition is not an appropriate means for reversing a Commission determination on the highly factual issues of waiver or obviousness, making factual findings on remedy, bond, public interest, or domestic industry, or resolving any of the other factual disputes raised by Reynolds. *Id.* (movant's position must be "clearly correct as a matter of law"). Also, this Court has never adopted "time is of the essence" as a basis for granting summary disposition. Nor should it do so here, when the only alleged "emergency" was created by Reynolds, which rested its complaint, and hence the entire investigation, on a single patent it knew would expire on October 18, 2026. Patent expiration is not an "emergency" – it merely renders the appeal moot. *See INVT SPE LLC v. Int'l Trade Comm'n*, 46 F.4th 1361, 1370 (Fed. Cir. 2022).

Reynolds's argument that the Commission allegedly relied on "new," "forfeited," or "waived" arguments is also without merit. Respondents consistently argued that a person skilled in the art would have found claims 1, 4,

and 12 of U.S. Patent No. 11,925,202 ("the '202 patent," R.Ex. A) to be obvious over the prior art "Kim" reference (U.S. Patent App. Pub. No. 2006.0016453, C.Ex. 1) in combination with "Pienemann" (International Patent Publication WO 00/28843, C.Ex. 2).[1] The Final Initial Determination ("FID") recognized as much, and the Commission analyzed the record through the proper lens of obviousness when it found the disputed claims invalid.[2] R.Ex. F (FID) at 154, 167-74, 176, 181-82; R.Ex. I (Comm. Op.) at 10-28.

The Commission also properly acted within its authority, and in accordance with the Administrative Procedure Act ("APA") and other procedural safeguards, when it gave the parties notice it was reviewing obviousness and the opportunity to submit additional briefing on the three specific limitations in dispute. R.Ex. H at 1556. Reynolds thus had ample opportunity to present arguments and evidence to dispute the obviousness of claims 1, 4, and 12, both before the presiding administrative law judge ("ALJ") and the Commission.

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[1] Exhibits cited as "R.Ex." refer to Reynolds's exhibits, attached to its Motion for Summary Reversal (Dkt. 6). Exhibits cited as "C.Ex." refer to additional exhibits submitted by the Commission.

[2] Reynolds relies on forfeiture, waiver, and abandonment principles. The Commission uses waiver throughout to apply equally to all arguments.

Reynolds, moreover, is not entitled to immediate relief, even if its motion were granted. A remand would be needed because the Commission has not made any final determination on domestic industry, remedy, public interest, or bond, nor has Reynolds provided any legal authority to support its proposal that the Court decide factual issues in the first instance. This Court may only review the Commission's "final determinations" and may not act as the initial fact-finder. *See* 19 U.S.C. § 1337(c). Given the need for a remand and the timing of the patent's expiration, it is difficult to discern what effective relief Reynolds could obtain before the patent (and any orders based thereon) expire in six months.[3]

II. BACKGROUND

A. The '202 Patent

The '202 patent issued from the ninth in a series of continuation applications dating back to a grandparent application filed on October 18, 2006. R.Ex. A, cover. The '202 patent is directed to a vaping device with a mouthpiece and housing that contains a compartment for storing a "liquid aerosol-forming

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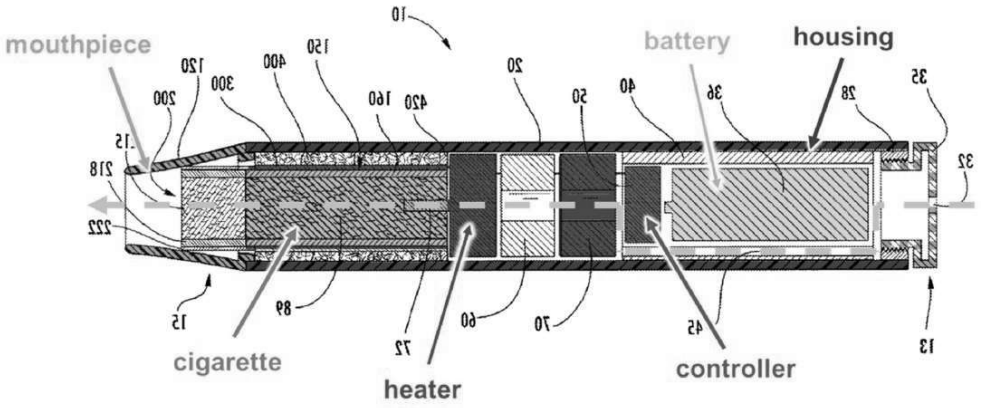
[3] The *amicus curiae* briefs submitted by the Energy Marketers of America (Dkt. 39), National Convenience Distributors, LLC (Dkt. 45), and the State of West Virginia (Dkt. 42) (collectively, "the *amici*"), are not relevant to Reynolds's motion because they raise public health and regulatory concerns that do not affect violation but only remedy, if any. None of the *amici* provides, or can provide, any evidence or arguments bearing on waiver or obviousness.

material," an air passageway, and a battery connected to a heater and a controller. *See, e.g.*, *id.* at 5:41-6:29, 32:58-33:18 (claim 1):



RDX-0102.25 (annotating JX-0001, Fig. 3)

R.Ex. I at 7 (reproducing annotated version of the '202 patent's Figure 3). Inhaling through the mouthpiece activates the heater, which vaporizes liquid stored nearby. R.Ex. A at 24:30-41, 29:10-40. The vaporized liquid mixes with outside air "to produce an aerosol that can be drawn into the mouth of a user." *Id.* at 33:7-13.

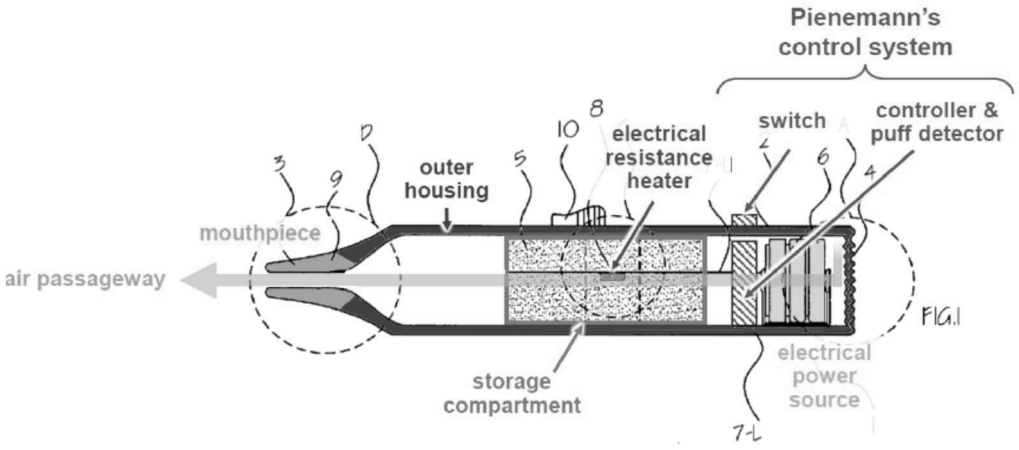
Only three claims remain in dispute – dependent claims 4 and 12, which incorporate independent claim 1. First, claim 1, limitation 1[e] requires the "storage compartment" to be "arranged such that the liquid aerosol-forming material can be **wicked into contact** with the electrical resistance heater." *Id.* at 33:1-6 (emphasis added). "Wicking" refers to capillary movement of liquid, which replenishes the supply of liquid as it is vaporized. *Id.* at 22:32-36; R.Ex. I at 163.

Second, claim 4 adds that "the aerosol that is produced **passes at least partially** through the storage compartment before exiting the mouthpiece." R.Ex. A at 33:25-28 (emphasis added).

Third, claim 12 adds that "the electrical resistance heater is configured **to allow airflow therethrough**." *Id.* at 33:53-55 (emphasis added).

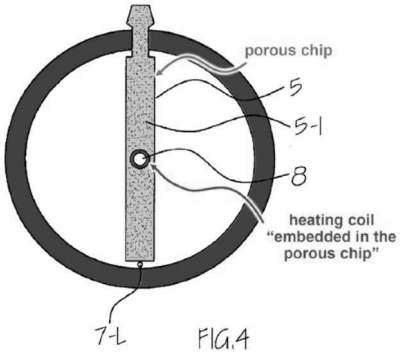
B. The Prior Art Kim and Pienemann References

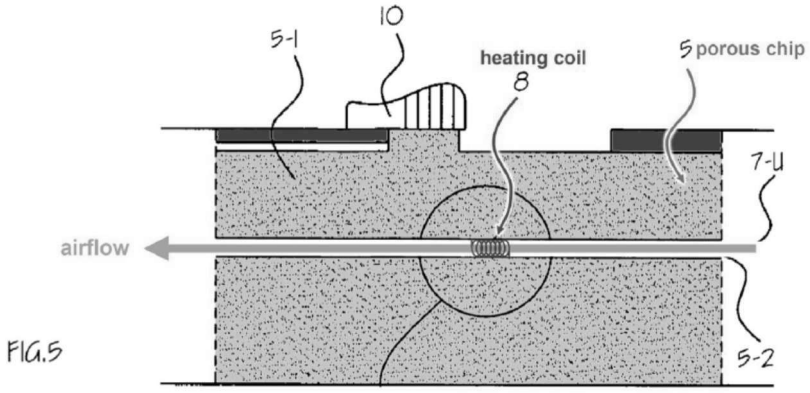
The FID found, and Reynolds did not dispute, that claims 1, 9, 11, and 15 are invalid as anticipated. R.Ex. F at 122-35, 144-46, 152-53, 190. There was also no dispute during review that combining Kim with Pienemann's controller system disclosed all of the structural limitations of claim 1, with the exception of the three disputed limitations identified above. *Id.* at 155-74 (claim 1), 174-76 (claim 4), 181-87 (claim 12). The basic structural elements of Kim combined with Pienemann are shown below:



Ex. I at 15 (reproducing annotated version of Kim, Figure 1, with Pienemann).

The disputed limitations involve Kim's "porous chip" (*i.e.*, the claimed "storage compartment"), which is formed of a "a porous polymeric material" that stores the aerosol-forming liquid. C.Ex. 1 (Kim) at [0014], [0015], [0017]. A plate-like porous chip is depicted below (in light blue), as seen from the front (at left) and the side (at right):





R.Ex. I at 16 (reproducing annotated versions of Kim, Figs. 4, 5).

Kim teaches that a "cylindrical hole," or channel, runs lengthwise through the porous chip, as shown above. C.Ex. 1 at [0015]. A stationary heating coil (in red, above) is positioned inside the central channel for vaporizing the surrounding liquid. *Id.* The porous chip "easily" expels the vaporized liquid, which mixes with air drawn into the device and is inhaled by the user. *Id.* at [0004], [0014], [0019]; R.Ex. J at 860:13-864:15. The sliding knob **(10)** can be used to move the porous

chip horizontally to bring a fresh supply of liquid closer to the heater for vaporization. C.Ex. 1 at [0012], [0014], [0019].

C. The Final Initial Determination

The FID found that Kim with Pienemann disclosed nearly all of the limitations of claim 1. R.Ex. F at 155-74. Nonetheless, the FID concluded that claim 1 is not obvious because wicking is not disclosed in Kim and would be purportedly obviated by Kim's slider. *Id.* at 164-66. The FID also found that claim 4 is not obvious because Respondents' expert, Dr. Dean, misinterpreted "the aerosol that is produced" in claim 4 to refer to the vaporized liquid itself, rather than the mixture of vaporized liquid with outside air, per limitation 1[f]. *Id.* at 176.

Finally, the FID found that claim 12 is not obvious because Kim does not disclose airflow through the heater or provide any "functional reason why there would need to be airflow through the heater." *Id.* at 184-85. Reynolds's expert, Mr. Alarcon, also testified that airflow through the channel would be blocked by crimps and solder joints in the small heating coil. *Id.* at 185. The FID was unconvinced by Dr. Dean's testimony that a person skilled in the art would have known that the parameters for the passageway and heating coil, *e.g.*, the spacing between the porous chip and the heating coil, the type of wire material, the number

and diameter of the wire coils, the length and gauge of the wire, etc., could be varied as ordinary design choices. *Id.* at 185-86.

D. Commission Review and Findings on Obviousness

Respondents filed a petition for review of the FID's adverse findings on obviousness. R.Ex. H at 1556. Reynolds opposed Respondents' petition but did not file a petition of its own. The Office of Unfair Import Investigations argued before the ALJ that claims 1, 4, and 12 are obvious over Kim with Pienemann, but argued on review that the FID did not contain any reversible errors.

The Commission informed the parties that it would be reviewing the ALJ's findings that claims 1, 4, and 12 are not obvious, and requested briefing on the obviousness of the three disputed claim elements. *Id.* The Commission also reviewed domestic industry. *Id.*

After close examination of the parties' submissions, the FID, and the record, the Commission concluded that claims 1, 4, and 12 are obvious over Kim with Pienemann. R.Ex. I 15-28. The Commission also found that Respondents had not waived their arguments relating to obviousness and took no position on domestic industry. *Id.* at 12-14, 34.

Having found all of the claims asserted for infringement invalid, the Commission found no violation of section 337. *Id.* at 28.

III. ARGUMENT

Reynolds's Motion for Summary Reversal should be denied because it cannot meet the exacting standard required for summary disposition.

A. Reynolds Cannot Meet the High Standard for Summary Disposition, Nor Should Summary Disposition Resolve Factual Disputes

In *Joshua*, the Federal Circuit set forth a high standard for summary disposition under Federal Rule of Appellate Procedure 2[4]: "We hold that summary disposition is appropriate, *inter alia*, when the position of one party is so clearly correct as a matter of law that no substantial question regarding the outcome of the appeal exists." *Joshua*, 17 F.3d at 380 (cited in, *e.g.*, *VidStream LLC v. Twitter, Inc.*, 2024 WL 4820802, at *1 (Fed. Cir. Nov. 19, 2024)). The Commission is not aware of, nor does Reynolds cite, any case in which this Court has summarily reversed a determination on waiver or obviousness (apart from jurisdictional or other threshold issues). *Cf., e.g.*, *Intellectual Ventures I LLC v. Symantec Corp*., 2017 WL 11479827, at *1 (Fed. Cir. May 3, 2017) (unpublished) (reversing

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[4] Federal Rule of Appellate Procedure 2(a) provides:

> [A] court of appeals may – to expedite its decision or for other good cause – suspend any provision of these rules in a particular case and order proceedings as it directs….

infringement where patent was found invalid in another proceeding). Reynolds cannot meet the high bar here, as discussed in Section III.B. below.

Moreover, this Court did not adopt a "time is of the essence" basis in *Joshua*, 17 F.3d at 380, as Reynolds erroneously contends. Rather, *Joshua* cited it as only one of many examples applied by other circuit courts. *See id.* (citing *Groendyke Transport, Inc. v. Davis*, 406 F.2d 1158, 1162 (5th Cir. 1969)). Even so, the expiration of a patent does not create an emergency – rather, expiration renders the appeal moot. *See INVT*, 46 F.4th at 1370; *The Chamberlain Group, Inc. v. Int'l Trade Comm'n*, 2023 WL 3115579, at *4 (Fed. Cir. Apr. 27, 2023). This is particularly fitting here, where Reynolds decided to assert only one patent, knowing it will expire in October 2026. *See* Commission's Opposition to Reynolds's Emergency Mot. to Expedite (Dkt. 41) at 1-2, 8-10 (explaining that patent expiration is not a "emergency"). Reynolds provides no other good cause why this appeal should be expedited through summary reversal.

Reynolds further errs by attempting to resolve factual disputes through summary disposition. *See Joshua*, 17 F.3d at 380 (stating that movant's position must be "clearly correct as a matter of law"). The very issue on which Reynolds seeks expedited review – waiver/forfeiture for failure to raise certain arguments or evidence – is a factual finding, which is subject to a tribunal's "case-by-case

discretion" and reviewed for abuse of discretion. *See Pence v. Langdon*, 99 U.S. 578, 581 (1878) ("Acquiescence and waiver are always questions of fact."); *ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d 509, 517-18 (Fed. Cir. 2012) (tribunals apply case-by-case discretion); *F.lli De Cecco di Filippo Fara S. Martino S.p.A. v. United States*, 216 F.3d 1027, 1031 (Fed. Cir. 2000) (abuse of discretion). For this reason as well, summary disposition on the issue of waiver should be denied.

Reynolds also concedes it is not challenging the substance of the Commission's obviousness determination. Reynolds's Reply Supp. Emergency Mot. to Expedite (Dkt. 53) at 11 ("Reynolds is not asking this Court to decide the scope and content of the prior art or whether the inventions claimed in the '202 Patent would have been obvious in light of that art."). Reynolds's motion should thus be denied because it makes no showing that "no substantial question regarding the **outcome of the appeal** exists." *Joshua*, 17 F.3d at 380 (emphasis added). Nevertheless, to the extent Reynolds challenges the Commission's interpretation of Kim, the knowledge and common sense of a person skilled in the art, and expert testimony, these are also factual findings reviewed for substantial evidence – not *de novo*, and certainly not on summary disposition. *Purdue Pharma L.P. v. Epic Pharma, LLC*, 811 F.3d 1345, 1351 (Fed. Cir. 2016).

B. Neither Reynolds's Waiver Allegations Nor Its Obviousness Challenge Clear the High Bar for Summary Disposition

Reynolds's objections are not only inappropriate for adjudication on summary disposition; they fail on the merits as well. Under its own theory, Reynolds has to prove a negative – that it is "so clearly correct as a matter of law" that Respondents waived, *i.e.*, **never** argued, that a person of ordinary skill in the art would have found the '202 patent claims to be obvious over Kim with Pienemann – to show that "no substantial question regarding the outcome of the appeal exists." *See Joshua*, 17 F.3d at 380.

The Commission specifically considered these waiver arguments during review and rejected them, because Respondents clearly argued that **a person of ordinary skill in the art** would have found claims 1, 4, and 12 obvious over Kim with Pienemann, as the FID recognized. *See, e.g.*, R.Ex. I at 12-14; R.Ex. F at 154, 174-76, 181-82. Respondents also provided relevant testimony regarding the physics behind wicking and the knowledge of a person skilled in the art regarding ordinary design principles. *See* R.Ex. I at 14, 18-20, 23-24, 26-28.

The present case stands inapposite to those cited by Reynolds. *See* Mot.Summ.Rev. at 12. In both *Kyocera Wireless Corp. v. ITC*, 545 F.3d 1340, 1352 (Fed. Cir.2008), and *Kinik Co. v. Int'l Trade Comm'n*, 362 F.3d 1359, 1367 (Fed. Cir. 2004), this Court **affirmed** the Commission's application of waiver

because the respondents in question **failed** to include **any** obviousness arguments in their briefs or testimony before the ALJ. In contrast, the Commission **declined** to apply waiver here because Respondents **argued** obviousness in their briefs and provided relevant expert testimony. Ex. I at 12-14; *see also, e.g.*, Ex. F at 154.

Reynolds's motion thus devolves to its allegation that Respondents argued that the disputed elements were "[e]xpressly disclosed by Kim," whereas the Commission examined whether they were "[o]bvious in view of Kim in combination with knowledge of [a person skilled in the art]." Mot.Summ.Rev. at 9 (emphasis removed). The Commission's analysis is not error but black-letter law – obviousness **requires** examining the scope and content of the prior art from the viewpoint of a person skilled in the art and then comparing that prior art to the claimed invention. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406-07, 415 (2007) (discussing *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966)). An obviousness analysis should consider "logic, judgment, and common sense" in the art, particularly when the technology is well-understood. *See Intercontinental Great Brands LLC v. Kellogg N. Am. Co.*, 869 F.3d 1336, 1344, 1348 (Fed. Cir. 2017). An invention is likely obvious where it comprises a combination of known elements that achieves no more than predictable results, or where each claimed element performs the same function that is known in the art. *Id.*; *KSR*, 550 U.S. at

415-17. In this context, the Commission found it was error to ignore what a skilled artisan would have found logical or obvious in view of Kim or to limit the obviousness analysis to Kim's own teachings. R.Ex. I at 17-19, 23, 26, 28 (discussing R.Ex. F at 164-66, 176, 184-87); *see also id.* at 18 (quoting *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1360 (Fed. Cir. 2006) ("It is important … to distinguish between the references sought to be combined and 'the prior art,' as the latter category is much broader")).

Here, Respondents not only argued that Kim disclosed wicking but also showed that wicking was so well-known that its basic physical laws date back 150 years. R.Ex. J at 740:22-742:5. Indeed, the very properties that Kim attributes to its porous chip – its ability to store and hold liquid for vaporization and then release the vaporized liquid "easily" – are practiced by wicking materials, which can also transport liquid through their porous structures to replenish the supply of liquid. R.Ex. I at 14, 18-20 (citing C.Ex. 1 at [0012], [0014], [0015], [0017], [0019]; R.Ex. J at 740:11-742:5, 807:6-808:3, 810:7-811:16). The same arguments used to show that Kim discloses wicking also show that wicking was an obvious design choice for the porous chip. *Id.*

The Commission's findings did not require modifying Kim, as Reynolds erroneously asserts. To the contrary, the Commission found that "a person skilled

in the art either would have understood that **Kim's porous chip practices wicking** or would have been motivated to use a wicking material, so that liquid throughout the chip can be more efficiently wicked toward the heater and vaporized rather than wasted." R.Ex. I at 19 (emphasis added); *see also id.* at 18 (it was "obvious to use a wicking material in the porous chip, in view of Kim's teachings").

Likewise, for claims 4 and 12, the Commission found that "a person skilled in the art would have understood that the mixture of vaporized liquid and outside air **can pass through** the central channel in Kim's porous chip." *Id.* at 24 (emphasis added). A skilled artisan, the Commission found, would have understood that Kim's central channel and heating coil are subject to obvious design choices, such as the distance between the heating coil and the porous chip, the choice and thickness of materials, the number and diameter of the wire coils, etc., which could have allowed air or aerosol to pass through the channel. *Id.* at 23-28. Kim does not teach that either the heating coil or the central channel in the porous chip must be airtight, as Reynolds's theory requires. *Id.* at 23, 26 (citing R.Ex. J at 863:24-864:6, 868:13-871:8). Even if this Court were to agree that Respondents waived arguments about certain design choices, the Commission made these other findings, based on substantial and not conclusory evidence, about what a skilled artisan would have understood Kim to disclose. *See* Ex. I at 22-28.

The Commission also has discretion in addressing waiver on a case-by-case basis, which is reviewed for abuse of discretion. *See* 19 C.F.R. § 210.43(b)(2) (arguments "abandoned" in a petition for review "may be disregarded by the Commission"); *see also ePlus*, 700 F.3d at 517-18; *Martino*, 216 F.3d at 1031. Here, the Commission declined to find waiver because Respondents were arguing obviousness, and then concluded that claims 1, 4, and 12 were obvious from the standpoint of a person skilled in the art, having all the knowledge, creativity, and common sense that a skilled artisan would possess. R.Ex. I at 14, 18-24, 26-28. There is no basis to find that the Commission acted arbitrarily or capriciously.

C. The Commission Did Not Violate the Administrative Procedure Act or Any Other Procedural Safeguards

There is also no merit to Reynolds's argument that the Commission violated the APA, due process, the principle of party presentation, or this Court's jurisprudence on forfeiture and waiver. Mot.Summ.Rev. at 7. The APA requires that Commission adjudications "be determined on the record after opportunity for an agency hearing" and include timely notice of "the matters of fact and law asserted." 5 U.S.C. §§ 554(a), (b)(3). Reynolds knew that Respondents were arguing obviousness, which involves knowledge of a person skilled in the art, as the FID recognized. *See* R.Ex. F at 154-55, 161-62, 171-74.

Nor is there merit to its complaint that the Commission's three review questions "addressed obviousness theories that no party had ever raised before." *See* Mot.Summ.Rev. at 7 (emphasis removed). The Commission gave the parties notice of its intention to review obviousness and the opportunity to respond to three questions directed to the specific claim limitations in dispute:

- **Claim 1, limitation 1[e]:** "Explain whether, at the time of the invention, it would have been obvious to a person skilled in the art to use a porous material capable of wicking liquid toward the heater element in view of [Kim with Pienemann]."
- **Claim 4:** "Explain whether it would have been obvious to use a porous chip that permits 'the aerosol that is produced' (using the FID's interpretation of that term) to pass at least partially though that chip, as recited in claim 4 of the '202 patent."
- **Claim 12:** "Explain whether, at the time of the invention, it would have been obvious to a person skilled in the art to design a central channel with a heater coil or other heater element that permits airflow therethrough, as recited in claim 12 of the '202 patent, in view of Kim with Pienemann."

R.Ex. H at 1556. The parties were allowed to file both opening and reply submissions. *See id.*

The Commission's review questions and final determination fall within its authority as the final fact-finder. *See* 19 U.S.C. § 1337(c); 19 C.F.R. § 210.45(c). When the Commission reviews an FID, in whole or in part, it "has all the powers which it would have in making the initial determination, except where the issues are limited on notice or by rule." *Certain Electronic Devices, Including Streaming*

Players, Televisions, Set Top Boxes, Remote Controllers, and Components Thereof, Inv. No. 337-TA-1200, Comm'n Op. at 7 (Nov. 10, 2021), *available at* 2021 WL 5822291, at *4 (Dec. 3, 2021) (quotations omitted), *aff'd, Roku, Inc. v. Int'l Trade Comm'n*, 90 F.4th 1367, 1375 (Fed. Cir. 2024). The Commission considers **all** reviewed issues *de novo*, and may affirm, reverse, modify, vacate, or remand the FID or any portion thereof. 19 C.F.R. § 210.45(c); *Certain Electronic Stud Finders, Metal Detectors and Electrical Scanners*, Inv. No. 337-TA-1221, Comm'n Op. at 9 (Feb. 15, 2022), *available at* 2022 WL 834280, at *4 (Mar. 14, 2022), *aff'd, Zircon Corp. v. Int'l Trade Comm'n*, 101 F.4th 817 (Fed. Cir. 2024). "The Commission also may make any findings or conclusions that in its judgment are proper based on the record in the proceeding." 19 C.F.R. § 210.45(c).

The Commission's actions also satisfied the APA. The Commission did not make any "new arguments" or inappropriate "credibility" findings. Instead, the Commission found that the FID and Reynolds had focused too narrowly on what Kim expressly discloses, without adequately viewing Kim or the experts' testimony through the lens of obviousness. R.Ex. I at 17-18, 21, 23-24, 26, 28 (discussing, *e.g.*, R.Ex. F at 164, 166 n.87). The Commission then analyzed the same record that had been before the ALJ using the appropriate standard of obviousness and found that many of the same arguments and evidence used to

show that Kim discloses the disputed claim elements also showed that those elements were known in the art and represented obvious design choices for Kim's porous chip, central channel, and heating coil. *Id.* at 14, 18-20, 24-28.

Since the issue was obviousness, Reynolds was not limited to disputing Kim's express disclosures or precluded from disputing obviousness more broadly. Hypothetically, one might have argued that wicking was not well-known in the art or that wicking and/or air flow would not have worked or were otherwise incompatible with Kim's device. Yet Reynolds did not make such arguments, apart from arguing that Kim's slider supposedly obviated the need for wicking or that the heating coil necessarily blocked any air and aerosol flow through the porous chip – arguments that the Commission found unpersuasive in view of the record. *See* R.Ex. I at 21, 23-24, 26-27. Reynolds also presented no objective evidence (*e.g.*, commercial success, unexpected results) that its invention is not obvious. Ex. I at 12 (citing Ex. F at 122 n.64). Thus, Reynolds was not "blindsided" by the Commission's findings.

The Commission's review procedures – in which it provided explicit notice of its intention to review obviousness, invited additional briefing on the obviousness of the three disputed limitations, and relied on the same record that had been before the ALJ – are also consistent with practices this Court has found

acceptable. For example, in *Tesla, Inc. v. Charge Fusion Technologies, Inc*., No. 24-2015, 2026 WL 879658, at *7-8, (Fed. Cir. Mar. 31, 2026), the Court rejected accusations that the Patent Trial and Appeal Board ("PTAB") violated the APA by adopting certain claim constructions that it allegedly had not proposed or adopted prior to its final written decision. The Court found instead that the PTAB had sufficiently informed the parties of its interest in the claim construction issue during institution and oral argument and provided them with an opportunity to respond. *Id.* It is also important to remember that *Tesla* and the PTAB decisions cited by Reynolds were each decided in the course of an ordinary appeal, not on an expedited motion for summary reversal.

The PTAB cases cited by Reynolds are similarly inapposite to summary reversal. In *In re Magnum Oil Tools International, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016) (cited by Reynolds in Mot.Summ.Rev. at 15), the Court reversed the PTAB only after finding that the PTAB had committed multiple legal errors, including relying on a different combination of prior art from what was asserted in the petition, improperly shifting the burden of proof from petitioner to patent owner, using a legally incorrect standard for assessing obviousness, and failing to provide an adequate explanation for the motivation to combine. *See id.* at 1372, 1375-77, 1380-81. It was in this context that the Court found that the PTAB

improperly relied on conclusory statements relating to a different prior art combination and on arguments the petitioner could have made, but did not actually make, in its petition. *See id.* at 1381. None of these facts applies here.

Likewise, in *Axonics, Inc. v. Medtronic, Inc.*, 75 F.4th 1374, 1383-84 (Fed. Cir. 2023) (cited by Reynolds at Mem.Summ.Rev. at 2, 17), the Court faulted the PTAB for not giving the petitioner an opportunity to present arguments and evidence in response to a new claim construction the PTAB adopted after institution. In *Apple Inc. v. Corephotonics Ltd.*, 81 F.4th 1353, 1360-62 (Fed. Cir. 2023), the Court found that the PTAB erred by dismissing an expert's arguments due to a typographical error – an error that neither party had identified as material – and then failing to provide a reasoned explanation why the error was significant or any notice or opportunity for the parties to respond to the error. As before, none of these facts applies here.

Notably, the Court's remedy in both *Apple* and *Axonics*, was vacatur and remand, not summary reversal. *Apple*, 81 F.4th at 1362; *Axonics*, 75 F.4th at 1384. Thus, even if this Court were to believe that Reynolds was denied the opportunity to adequately address the issue of obviousness, these cases favor remand, not summary reversal, of obviousness. This would be particularly fitting here, where Reynolds imposed its own "emergency" and has not shown that its position is "so

clearly correct as a matter of law that no substantial question regarding the outcome of the appeal exists," in contravention of *Joshua*, 17 F.3d at 380.

In sum, Reynolds has failed to show that the Commission violated the APA or made any other legal error that warrants summary reversal.

D. Reynolds Cannot Receive the Immediate Relief It Seeks, Regardless of the Outcome of Its Motion

Reynolds is not entitled to any immediate relief, regardless of the outcome of its motion, because the Commission would have to conduct additional fact-finding on remand before any order could be issued. Appellate courts review factual findings; they do not make them. *Mittal Steel Point Lisas Ltd. v. United States*, 542 F.3d 867, 875 (Fed. Cir. 2008) (citing *Icicle Seafoods, Inc. v. Worthington*, 475 U.S. 709, 714 (1986)). For instance, the Commission has not made any factual findings regarding:

(1) remedy, including whether:

(a) there is either a pattern of violation or substantial difficulty in identifying potential infringers that would justify issue a general exclusion order (as Reynolds requested) rather than a limited exclusion order, per 19 U.S.C. § 1337(d)(2);

(b) the remedial orders, if any, should include any special provisions or exemptions; and

(c) any cease and desist orders should be issued;

(2) whether any of the four statutory public interest factors preclude issuance of a remedy under 19 U.S.C. § 1337(d) & (f); and

(3) whether, and in what amount, a bond may be imposed on covered goods imported or sold during the 60-day period of Presidential review under 19 U.S.C. § 1337(j)(3).

None of these issues can, or should, be decided in the first instance by this Court.

Reynolds similarly errs in asking this Court to make factual findings on domestic industry in the first instance, where the Commission, acting within its authority, declined to take a position. *See Beloit Corp. v. Valmet Oy*, 742 F.2d 1421, 1423 (Fed. Cir. 1984); 19 C.F.R. § 210.45(c). Reynolds also misstates the Supreme Court's holding of *Pullman-Standard v. Swint*, 456 U.S. 273, 291-92 (1982), to suggest that appellate fact-finding is appropriate. *Pullman* states, in full, that "where findings [by the district court] are infirm because of an erroneous view of the law, a remand is the proper course unless the record permits only one resolution of the factual issue." *Id.* at 292. It further states: "[F]actfinding is the basic responsibility of district courts, rather than appellate courts, and … the Court of Appeals should not have resolved in the first instance this factual dispute which had not been considered by the District Court." *Id.* at 291-92 (quoting *DeMarco v. United States*, 415 U.S. 449, 450 n.* (1974)).

Furthermore, importation could continue while the Commission adjudicates remedy, public interest, bond, and domestic industry on remand, as well as during the sixty (60) days allowed for Presidential review of any remedial orders that may issue, per 19 U.S.C. § 1337(j)(3). Because the Commission grants only

prospective relief, any potential remedy would be short-lived until the '202 patent expires in October 2026.

IV. CONCLUSION

Accordingly, Reynolds's Motion for Summary Reversal should be denied.

Respectfully submitted,

By: */s/ Carl P. Bretscher*

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International Trade Commission

Date: April 17, 2026

CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMITATION, TYPEFACE, AND TYPE STYLE REQUIREMENTS

Pursuant to Federal Rule of Appellate Procedure 27(d)(2)(A) and 32(g)(1), I hereby certify that the attached opposition complies with the type-volume limitation and typeface requirements. The opposition has been prepared in a proportionally-spaced typeface using Microsoft Office 365, in Times New Roman 14-point font. The response contains a total of 5,192 words, obtained from the word-count function of the word-processing system, including all footnotes and annotations.

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Counsel for Appellee
International Trade Commission

Date: April 17, 2026

TABLE OF COMMISSION EXHIBITS

Exhibit No.	Description
C.Ex. 1	U.S. Patent App. Pub. No. 2006.0016453, to In Young Kim ("Kim")
C.Ex. 2	International Patent Publication WO 00/28843 to T. Pienemann ("Pienemann") (English translation only)

Exhibits cited as "R.Ex." refer to Reynolds's exhibits, attached to its Motion for Summary Reversal (Dkt. 6).

COMMISSION EXHIBIT 1

US 20060016453A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2006/0016453 A1**

Kim (43) **Pub. Date: Jan. 26, 2006**

(54) **CIGARETTE SUBSTITUTE DEVICE**

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(21) Appl. No.: **10/896,136**

(22) Filed: **Jul. 22, 2004**

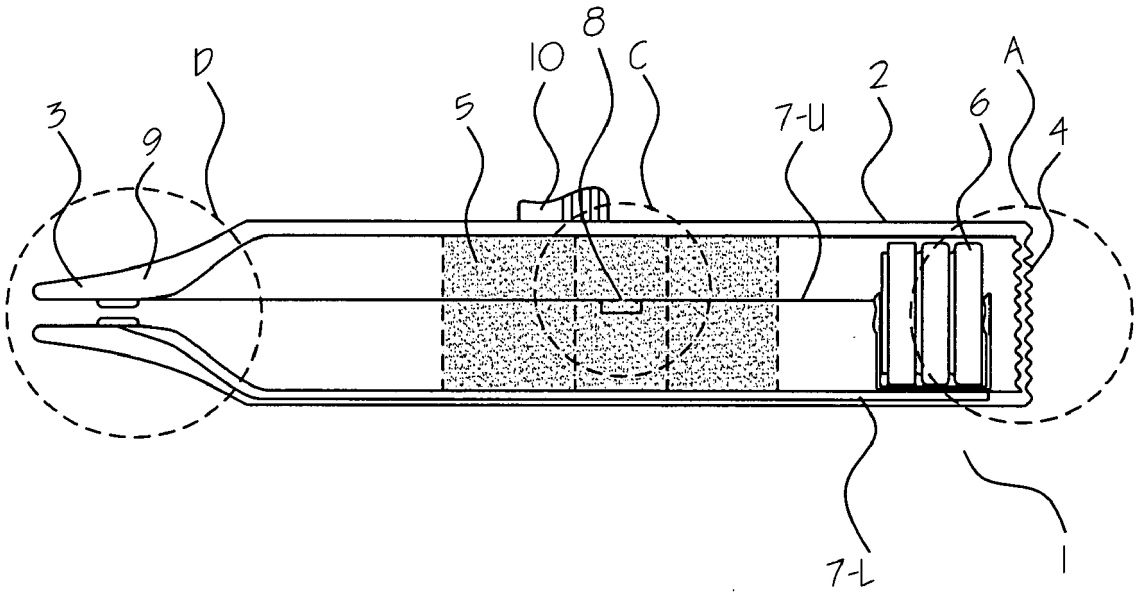
Publication Classification

(51) **Int. Cl.**
A24F 1/32 (2006.01)

(52) **U.S. Cl.** **131/194**

(57) **ABSTRACT**

A spot-heating cigarette substitute device, which, in response to an electric power supplies and suction by a user, evaporates nicotine mixture and delivers them to the user. The device has a porous solid chip; an electric circuit is embedded therein for providing heat necessary for evaporating the nicotinic compound. A solution of a nicotine in an amount effective for its released vapors to satisfy the physiological needs for nicotine of the user, and volatile palatability enhancing agents in an amounts effective for their released vapors to impart a cigarette-like taste and aroma to the released vapor mixture are absorbed in the chip. The cigarette substitute is in custody in a case when not in use.



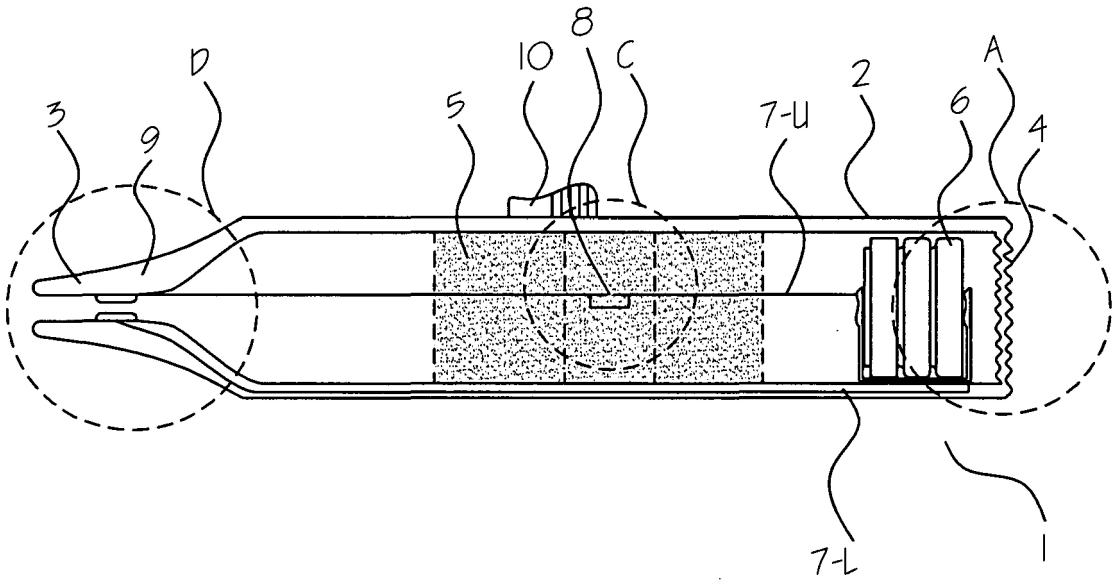


FIG.1

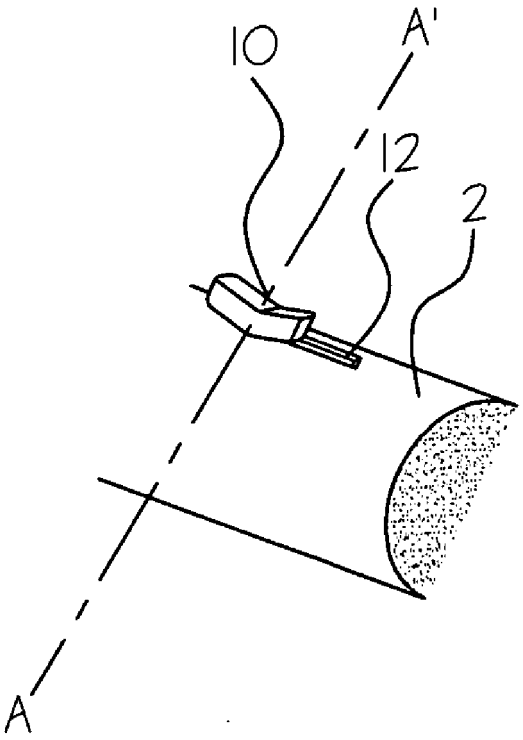


FIG.3

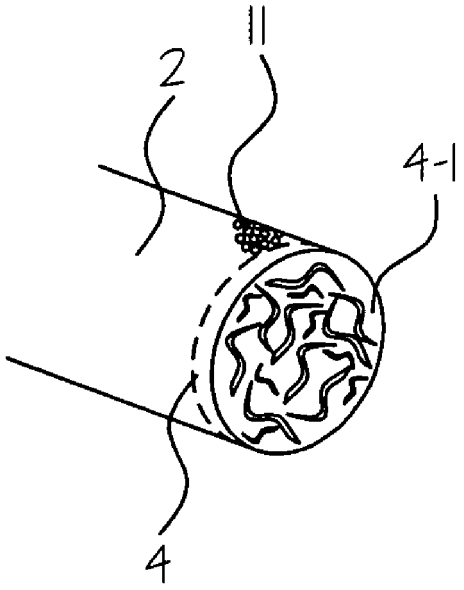


FIG.2

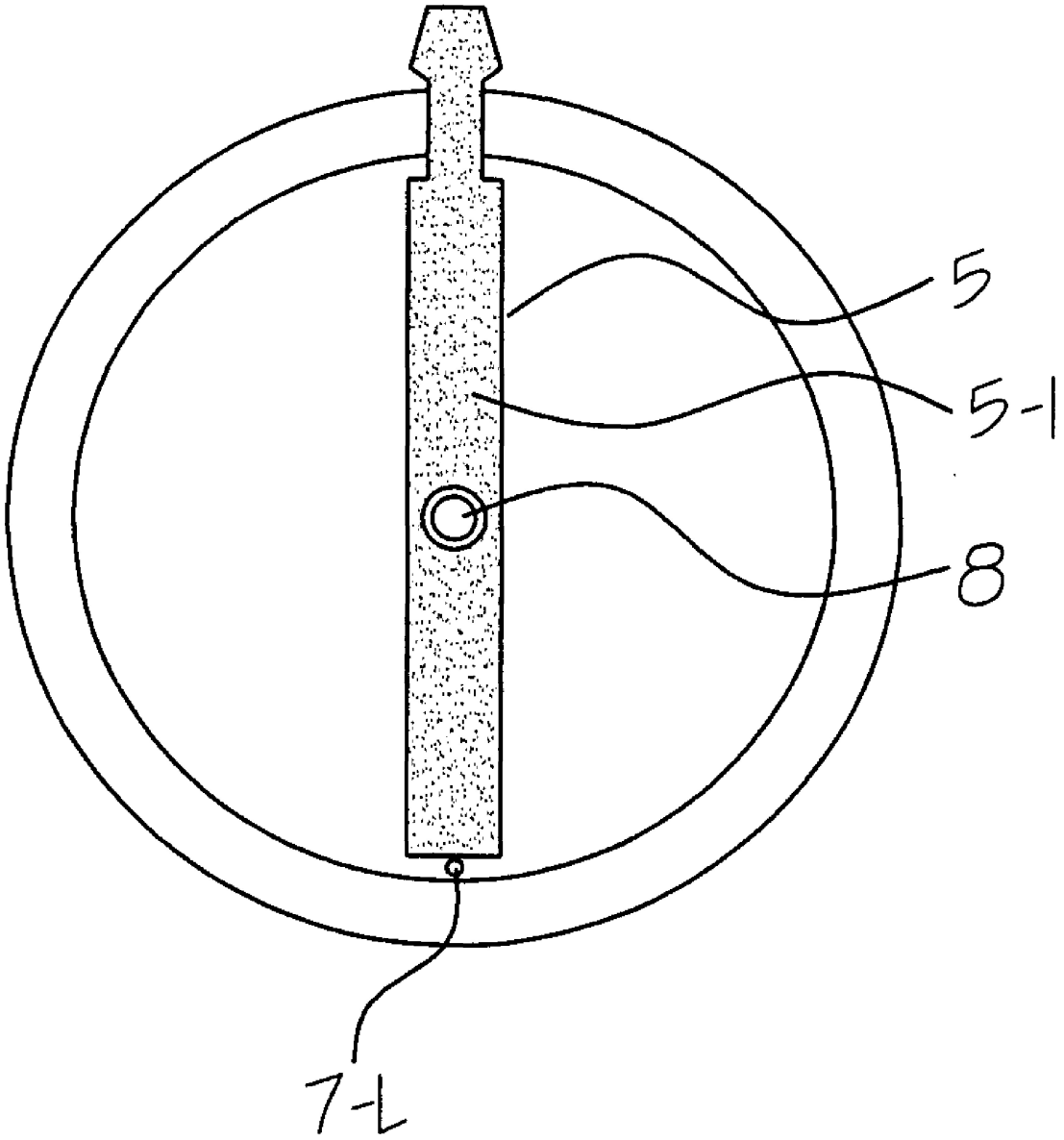


FIG.4

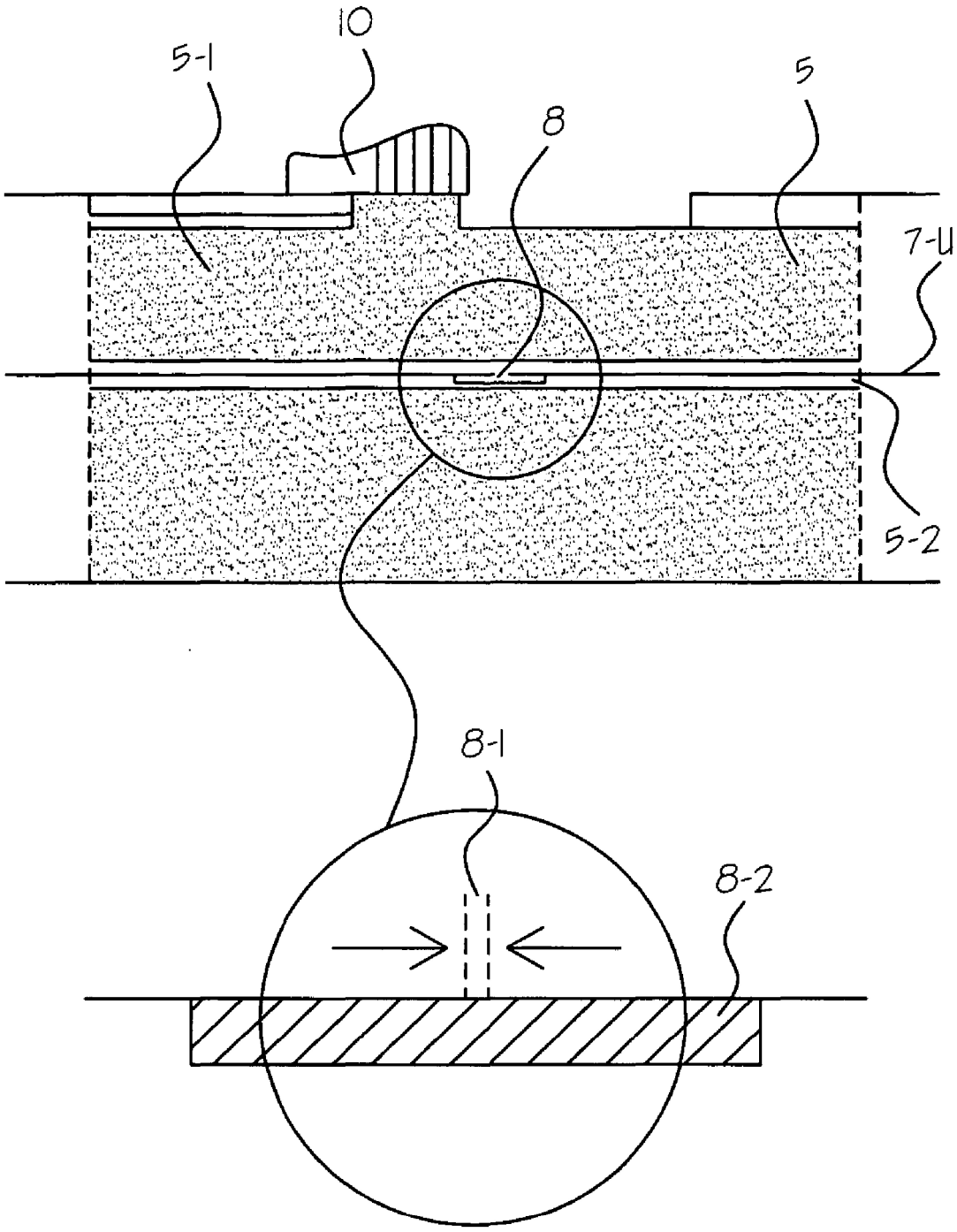


FIG.5

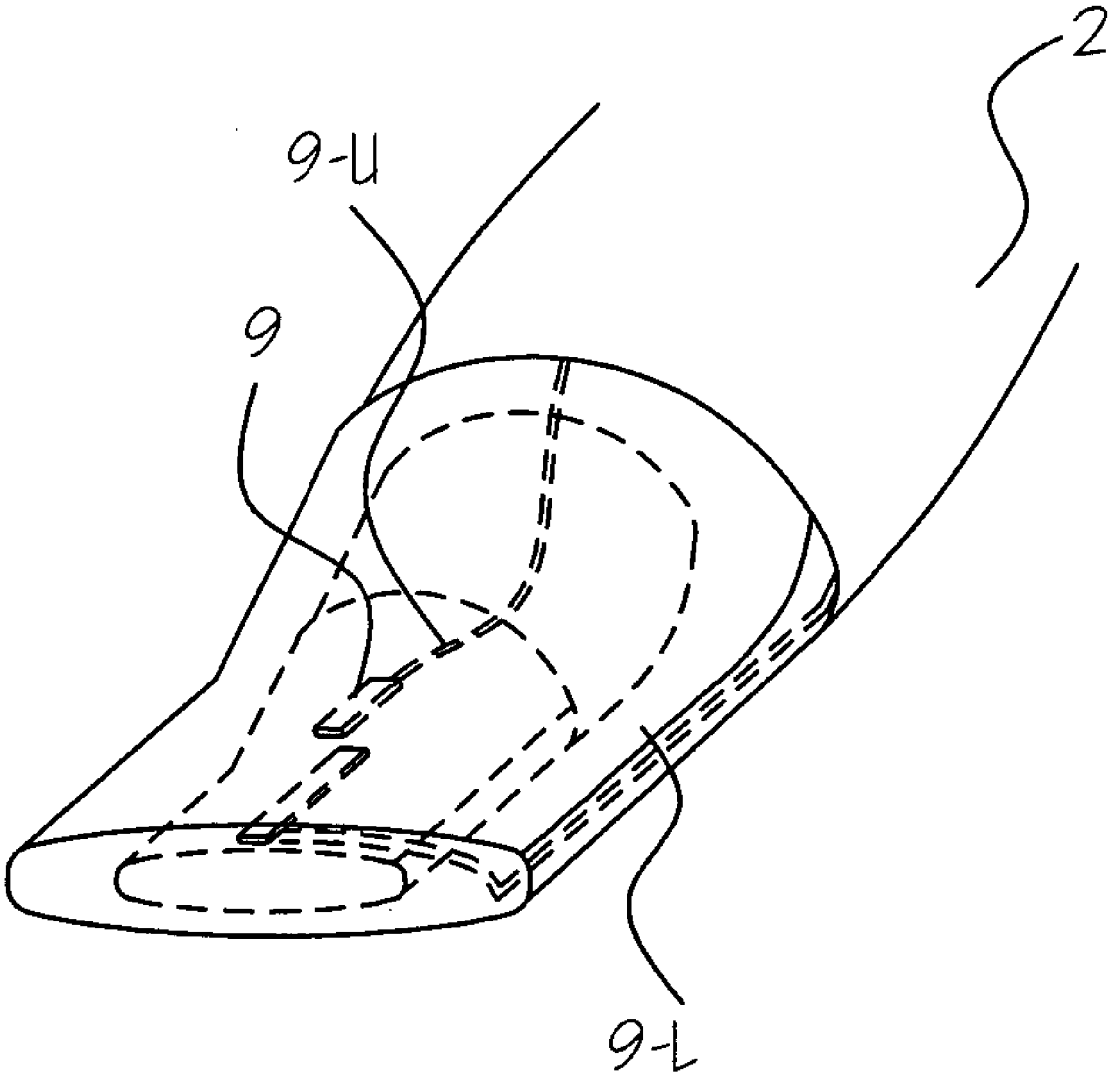


FIG.6

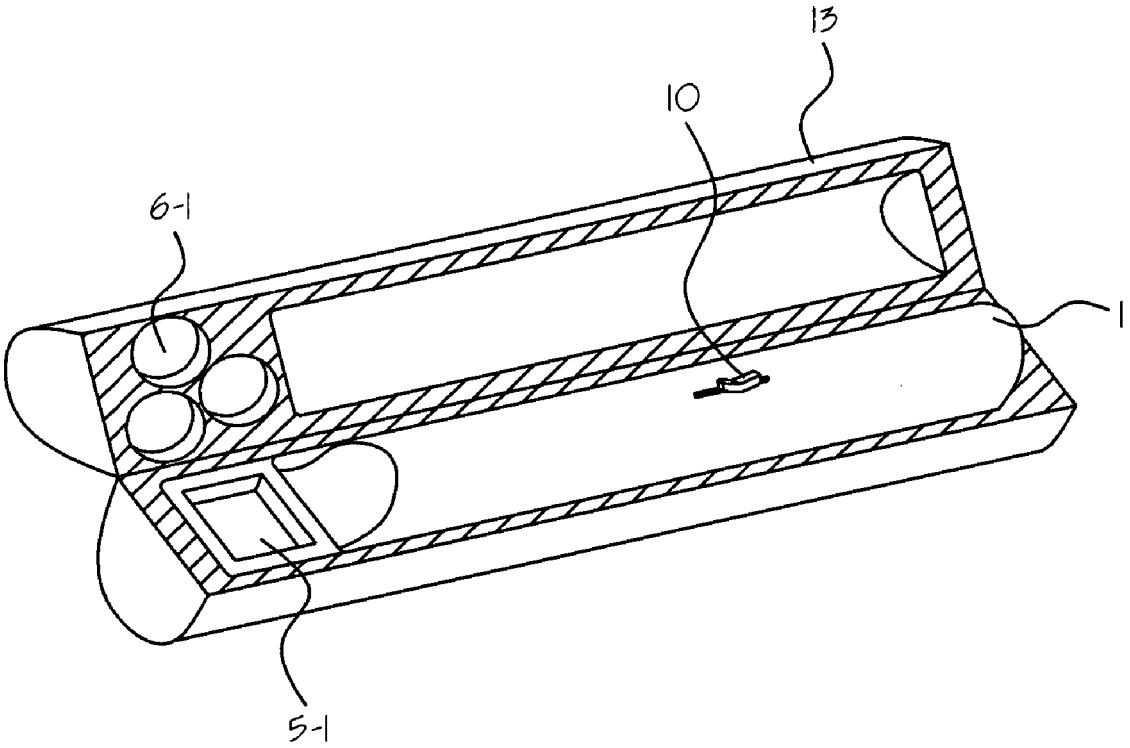


FIG.7

CIGARETTE SUBSTITUTE DEVICE

FIELD OF THE INVENTION

[0001] This invention relates to a cigarette substitute device for spot-heating use and, more particularly, to such a device adapted to deliver to a user nicotine and volatile palatability enhancing agent's mixture having a cigarette-like taste and aroma.

BACKGROUND OF THE INVENTION

[0002] The hazardous effect of second-hand smoke is known as the same as a direct smoke. Smoking is prohibited even on open public space such as U.S. Californian beaches. Such social pressures make habitual smokers unpleasant. Not only for the addictive effect of the Nicotine, there are several psychological factors, which are known to contribute to the habitual smoker's cigarette cravings. These include holding the cigarette, placing it between the user's lips, puffing on it, and experiencing the taste and aroma of the smoke. It is a purpose of the current application to provide a cigarette substitute device to minimize the hazardous of second-smoke, meanwhile satisfying the habitual smoker's cigarette cravings without breaking the public requirement.

DESCRIPTION OF THE PRIOR ARTS

[0003] The growing public unacceptability of smoking cigarette, encouraged to provide cigarette substitute devices for use which simulate the look, feel and taste of combustible cigarettes and delivers nicotine vapor to the user through inhalation. U.S. Pat. Nos. 4,284,089 and 4,813,437 to Ray, and U.S. Pat. No. 4,793,366 to Hill illustrate devices which are consist of an elongated tube having the approximate dimensions of an ordinary cigarette and housing a porous polymer plug serving as a reservoir for a source of vaporizable nicotine. The nicotine vapors are delivered to the user's lungs by the air drawn through the device by suction supplied by the user. These devices have failed to gain wide acceptance as a cigarette substitute due to their inability to deliver sufficient and uniform amounts of nicotine to the user's lungs, an unpleasant taste, and an unsatisfactory shelf life. Most of these problems are due to the instability of the volatile liquid nicotine employed in these devices, which decompose in the presence of oxygen and very rapidly dissipate from the system. U.S. Pat. No. 5,893,371 to Rose et al., U.S. Pat. No. 6,041,789 to Bankert et al., and U.S. Pat. No. 6,041,790 to Smith et al. illustrate non-pyrolytic, non-Nicotine cigarette substitute devices which contains a nicotine-simulating vapor mixture having a cigarette-like taste and aroma. None of the prior arts provide cigarette substitute device satisfying all the requirement of smokers and non-smokers at the same time.

SUMMARY OF THE INVENTION

[0004] The present invention overcomes the deficiencies of the above-described prior art non-heating cigarette substitute devices, by providing a cigarette substitute device for spot-heating use which, in response to suction supplied by a user, delivers to the user's lungs nicotine vapor mixture having a cigarette-like taste and aroma. The cigarette substitute device of the current application has a porous solid chip, an electric circuit is embedded therein for providing heat necessary for evaporating the nicotinic compound and turn on a light installed at the tip of the cigarette substitute to simulate the burning of the cigarette. And a solution of a nicotine in an amount effective for its released vapors to satisfy the physiological needs for nicotine of the user, and volatile palatability enhancing agents in amounts effective for their released vapors to impart a cigarette-like taste and aroma to the released vapor mixture are absorbed in the chip. The chips contains Nicotine amount equivalent to about two weeks needs for average smokers who smokes a pack of 20 cigarettes a day. The cigarette substitute of the current application is in custody in a case, when not in use, to reserve the aroma of the cigarette in the substitute.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] **FIG. 1** is a side elevation in longitudinal section illustrating the preferred embodiment of the cigarette substitute device utilizing the features of the present invention.

[0006] **FIG. 2** is an enlarged perspective view of the portion 'A' in **FIG. 1**, showing the front tip of the cigarette substitute device.

[0007] **FIG. 3** is an enlarged perspective view of the portion 'B' in **FIG. 1**, showing the middle part of the cigarette substitute device of the current application.

[0008] **FIG. 4** is a cross-sectional view of the portion 'B' along the line "A-A'" in **FIG. 1**.

[0009] **FIG. 5** is an enlarged cross-sectional view of the portion 'C' in **FIG. 1**, showing the electric shorting connector embedded in the porous chip.

[0010] **FIG. 6** is an enlarged perspective view of the portion 'D' in **FIG. 1**, showing the mouth tip of the cigarette substitute device.

[0011] **FIG. 7** is a schematic drawing of the cigarette substitute in a holding case.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0012] **FIG. 1** is a side elevation in longitudinal section illustrating the preferred embodiment of the cigarette substitute device **(1)** utilizing the features of the current application. The cigarette substitute device **(1)** of the present invention is comprised of a housing **(2)** in the form of an elongated tube, a mouth tip **(3)**, an LED (Light Emitting Diode) (4), a porous chip **(5)**, three 3 Volt mini-battiest **(6)** with 7 mm diameter, two electric wires **(7-U)** and **(7-L)**, an electric shorting connector **(8)**, an on/off electric connector **(9)**, and a sliding knob **(10)**. The housing **(2)** is preferably manufactured of a stiff plastic sheet with a diameter, length and weight which approximate the size of a conventional combustible cigarette, and with the appropriate color and texture, a white paper like look with proper commercial trade mark on it, to present the same appearance as a conventional combustible cigarette.

[0013] **FIG. 2** is an enlarged perspective view of the portion 'A' in **FIG. 1**, showing the front tip of the cigarette substitute device **(1)**. The tip is comprised of a red color LED **(4)**, whose front face is partially covered with white gray color wrinkles **(4-1)**, resembling cigarette fire covered with ash. Just behind the LED **(4)**, a porous hemi-circle **(11)** for air inlet is developed.

[0014] **FIG. 3** is an enlarged perspective view of the portion 'B' in **FIG. 1**, showing the middle part of the

cigarette substitute device (1) of the current application (1). A groove (12) is developed for sliding of the knob (10). And FIG. 4 is a cross-sectional view of the portion 'B' along the line "A-A'" in FIG. 1. The porous chip (5) is manufactured as a thin plate of 3 mm thickness to allow the evaporated Nicotine mixture come out of the chip (5) easily.

[0015] FIG. 5 is an enlarged cross-sectional view of the portion 'C' in FIG. 1, showing the electric shortening connector (8) embedded in the porous chip (5). An electric heating coil (8-3) may be installed instead of the shorting connector. Mixtures of Nicotine and volatile palatability enhancing agents are absorbed in the pores (5-1) of the porous chip (5). A cylindrical hole (5-2) is developed at the center of the chip (5) throughout the whole length of the chip (5) for allowing the chip (5) move front and back according to the sliding knob (10)' movement. This porous chip (5) may be manufactured as a slim plate or a rod with a porous polymeric material, preferably in the form of polymeric fibers, and having absorbed therein the volatile liquid composition of mixture of nicotine and volatile palatability enhancing agents. Disposed within the porous chip (5) is an electric shortening connector (8). This electric shortening connector is comprised of two electric wires (7-U) whose ends are spaced 0.01 mm part (8-1) on a non-conductive ceramic support (8-2) plate of 1.0 mm thickness, 1.0 mm width and 5 mm length. If an electric heating coil (8-3) is installed inspite of the electric shortening (8) connector, the ceramic support may not be necessary.

[0016] FIG. 6 is an enlarged perspective view of the portion 'D' in FIG. 1, showing the lipping tip (3) of the cigarette substitute device (1). An on/off electric connector (9) is located between the two lips of the lipping tip (3). The on/off electric connector (9) is comprised of two metal chips of (9-U) and (9-L) which are connected to the electric wires (7-U) and (7-L), respectively)

[0017] The cigarette substitute device (1) of the current application operates as follows. Aqueous mixture of Nicotine and volatile palatability enhancing agents are absorbed in the pores of the porous chip (5). The porous chip (5) is made of porous polymer.

[0018] When a habitual smoker put the cigarette substitute device (1) of the current application between his lips and presses the lipping tip (3) of the device, the two metal plates (9-U) and (9-L) of the on/off electric connector (9) is connected. Then the electric circuit is connected through the electric wires (7-U) and (7-L), three batteries (6), and the red color LED (4). However, as described before, the upper electric wire (7-U) is a 0.01 mm spaced apart. As the electric circuit is connected, an electric fire sparks on this spot (8). At the same time the red color LED (4) blinks as the spark takes place. Then the red color of the LED (4) combined with the white gray color wrinkles (4-1) resembles a smoking fire under an ash.

[0019] The heat from the spark evaporates the mixture of the Nicotine and volatile palatability enhancing agents out of the porous chip (5) from the pores (5-1) therein. As the smoker puffs, the evaporated mixture is delivered to the smokers mouth by the air stream which comes from the out side through the porous hemi circle (11) developed just behind the red color LED (4). When a smoker purchases the cigarette substitute device (1) from a market, the porous chip (5) is placed at the most rearward of the device. Therefore, the nicotine mixtures absorbed at the most front side of the porous chip evaporates and is consumed first. As the Nicotine mixture is consumed, slide the knob (10) to the front side of the device (2) to make the unevaporized Nicotine mixture with the sparking spot (8). FIG. 7 is a schematic drawing of the cigarette substitute (1) in a holding case (13). The holding case is made of, including but not limited to, a metal, plastic, and wood. Places for spare porous chips (5-1) and spare batteries (6-1).

[0020] By utilizing the device of the current application, the smoker can satisfy his or her cigarette carvings without facing the public resistance.

What is claimed is:

1. A cigarette substitute device for spot-heating use is comprised of; a) an elongated plastic tube defining a passageway for air drawn through said device; b) a porous polymeric chip in a plate shape slidably disposed within the tube and absorbing the mixture of Nicotine and volatile palatability enhancing agents, c) a sliding knob connected to the porous plastic chip in a plate shape to slide the plate along the groove developed on the plastic tube d) a red color LED (Light Emitting Diode) positioned at the front of the tube, e) three 3V mini batteries connected in series, f) a mouth tip made of transparent flexible plastic and holding two metal plates of an on/off electric connector on each upper and lower portion of the flexible mouth tip, and g) an electric wire connected to the LED, batteries, the metal plates of the on/off electric wire and forming a shortening circuit in the porous polymeric chip.

2. The cigarette substitute device of claim 1, wherein the porous polymer chip is in a cylinder form of 3 mm in diameter.

3. A cigarette substitute device for spot-heating use is comprised of; a) an elongated plastic tube defining a passageway for air drawn through said device; b) a porous polymeric chip in a plate shape slidably disposed within the tube and absorbing the mixture of Nicotine and volatile palatability enhancing agents, c) a sliding knob connected to the porous plastic chip in a plate shape to slide the plate along the groove developed on the plastic tube d) a red color LED (Light Emitting Diode) positioned at the front of the tube, e) three 3V mini batteries connected in series, f) a mouth tip made of transparent flexible plastic and holding two metal plates of an on/off electric connector on each upper and lower portion of the flexible mouth tip, and g) an electric wire connected to the LED, batteries, the metal plates of the on/off electric wire and a heating coil in the porous polymeric chip.

* * * * *

COMMISSION EXHIBIT 2

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INTERNATIONAL APPLICATION PUBLISHED ACCORDING TO THE INTERNATIONAL PATENT COOPERATION TREATY IN THE AREA OF THE PATENT SYSTEM (PCT) -

(51) International Patent Classification [7]: A24F 47/00	**A1**	**(11) International Publication Number:** **WO 00/28843** **(43) International Publication Date** May 25, 2000 (05/25/00)

(21) International Reference Number: PCT/EP99/08428

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(23) Priority Dates: November 12, 1998 (11/12/98) DE
198 54 005.1

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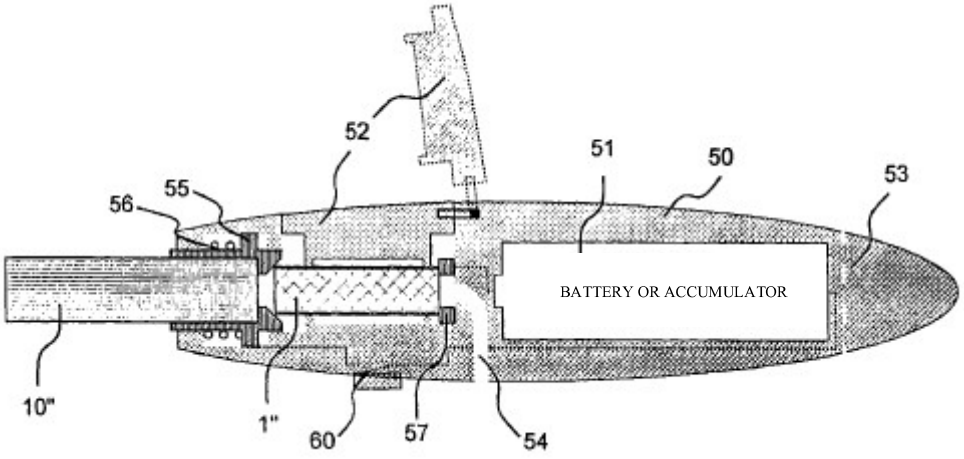
(81) States of destination: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO Patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Euro-Asian Patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European Patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI Patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
With international search report

(54) Title: SYSTEM FOR SUPPLYING AN INHALABLE AEROSOL



(57) Abstract

A system for supplying an inhalable aerosol contains a substrate portion (1") and an inhaling device. The substrate portion (1") has at least one heat resistor and contains an aerosol-forming material inside a casing which has an air inlet and an aerosol outlet. The casing of the substrate portion (1") is preferably electroconductive at least in sections and forms the at least one heat resistor. The inhaling device has a housing (50), a receiving device for holding the substrate portion (1") and contacts (55, 57) which are or can be connected to a voltage source (51) for supplying electrical power to the at least one heat resistor of the substrate portion (1").

[bilingual text]

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Inhalable Aerosol Delivery System

The invention relates to a system for providing an inhalable aerosol as well as the components of such a system. This system is particularly suitable as a smoking product for providing smoke aerosol to smokers.

When conventional cigarettes are used, most of the tobacco is not burned during puffs, but rather during puff breaks. This leads to the formation of so-called sidestream smoke, which is often perceived as harassing by non-smokers.

To overcome this problem, numerous new smoking products have been proposed, in which no tobacco is incinerated during the puff breaks. A common principle of such developments is that not the combustion heat of the tobacco, but other energy sources are used to release the smoke aerosol. This not only largely avoids the development of sidestream smoke, but by changing the temperature control during puffs, a preferred release of aromatic substances can also be achieved and the formation of irritating or undesirable by-products can be reduced. Replacement materials such as special film tobacco or carrier materials subjected to aromatic substances are often used in the proposed smoking products for aerosol formation instead of tobacco.

Thus, a cigarette-shaped smoking product is known in which the thermal energy of a smoldering carbon element is transferred to an aluminum capsule disposed inside the cigarette containing an aerosol-forming material.

In a modification of this smoking product, the aerosol-forming material uses a special film tobacco pressurized with high amounts of glycerol.

Both of the aforementioned smoking products have in common that the combustion gases of the heating element are inhaled with the smoking aerosol, which leads to an increased absorption of carbon monoxide by the smoker. Spatial separation of energy source and aerosol former leads to a taste deficit in the first puffs due to the difficult heat transfer. Furthermore, the entire smoking product, which, unlike conventional cigarettes, maintains its length, must be disposed of after use. This leads to an increased accrual of complex composite residues and associated disposal problems.

Another known smoking product works according to a different principle. In this case, a cigarette-shaped object with filter and tobacco part is inserted at the tobacco end into an electronically controlled smoking device. In the smoking device, the tobacco-containing part is heated in radially successive locations with the puffs using electric heating elements. This principle requires an elaborate design of the smoking device, which must be equipped with several heating elements and a complicated electronic control. The size and design of such a device is complex and distinctly different from that of a conventional cigarette.

The purpose of the present invention is to create a system for providing an inhalable aerosol that has a simple basic structure and can in particular serve as a smoking product that provides a similar taste to conventional cigarettes, but when used no sidestream smoke is generated between puffs.

This purpose is achieved by a system having the features of claim 1, comprising an inhaler device having the features of claim 3 3 and a substrate portion having the features of claim 35, and may comprise a mouthpiece having the features of claim 39. Advantageous embodiments of the invention result from the dependent claims.

The system according to the invention for the provision of an inhalable aerosol is particularly suitable as a smoking product, the functioning of which is based on the heating of an aerosol-forming material during the puffs. A preferably cylindrical substrate portion comprising at least one thermal resistor and containing the aerosol-forming material within a wrapper is smoked in a special, preferably cigarette- or cigar-shaped inhaler device. The coating of the substrate portion, which is electrically conductive for this purpose at least in sections, preferably serves as a thermal resistor. The substrate portion is heated in the inhaler device during puffs by supplying electrical energy into the conductive wrapper so that aerosol forms, which can be received by the smoker by drawing air through the air inlet opening of the wrapper via the aerosol outlet opening of the wrapper. The use of the smoking product prevents the formation of sidestream smoke during puff breaks.

The basic principle of the invention is therefore based on a spatial arrangement of heat source and aerosol former as close as possible. This is achieved by the fact that the substrate portion itself comprises the thermal resistor (or also several thermal resistors), which is preferably designed as a conductive wrapper of the substrate portion and is heated by applying a voltage across the contacts in the inhaler device.

Compared to the previously known smoking products mentioned above, the system according to the invention has the advantage that, despite a simple construction, no combustion gases are inhaled and the residual materials remaining after use can be made environmentally responsible.

In the following, the invention is explained in more detail based on exemplary embodiments. The drawings show in

Fig. 1a a perspective view of a substrate portion according to the invention,

Fig. 1b a longitudinal section through the substrate portion according to Fig. la,

Fig. Lc a cross section through the substrate portion according to Fig. la,

Fig. 2a a longitudinal section through another embodiment of a substrate portion according to the invention comprising an integrated mouthpiece,

Fig. 2b a perspective view of an embodiment of a substrate portion in which a number of axially spaced zones of electrical conductivity are provided,

Fig. 2b a perspective view of an embodiment of a substrate portion in which a number of axially spaced zones of electrical conductivity are provided,

Fig. 3 a schematic longitudinal section through an inhaler device according to the invention, in which the substrate portion according to Fig. 2a is inserted and which comprises a separate housing for control components and power supply,

Fig. 4a a schematic longitudinal section through another embodiment of an inhaler device according to the invention, which is designed for the use of a separate mouthpiece and which comprises a separate housing for control components and power supply, with an inserted substrate portion and inserted mouth piece,

Fig. 4b an illustration of a smoker's use of the system according to Figure 4a; and

Fig. 5 a schematic longitudinal section through another embodiment of an inhaler device according to the invention, which is designed for the use of a separate mouthpiece and in which the power supply is located in the housing, with inserted substrate portion and inserted mouthpiece.

A preferred embodiment of a substrate portion 1 is shown in Figures 1a to 1c. In the exemplary embodiment, the substrate portion 1 has a cylindrical shape, as can be seen from Figures 1a to 1c. It contains an aerosol-forming material 2 surrounded by an electrically conductive wrapper 3 arranged radially (i.e. on the cylinder barrel).

The aerosol-forming material 2 may consist of, for example, cut leaf tobacco, cut tobacco stems, reconstituted tobacco, or a carrier material treated with aromatic substances. The use of leaf and stem cuts can also take place in expanded form, such as obtained by applying the method described in patents DE 29 03 300, DE 31 19 330 and DE 34 14 625. Both organic materials such as paper and inorganic gel such as silica gel can be used as substrates for aromatic substances. Any mixtures of the aforementioned components can also be used.

In the preferred embodiment, the material 2 contains a fraction of about 3% to 30% of a volatile polyol, e.g. glycerol or propylene glycol, to enhance aerosol formation. Another way to increase aerosol formation is to use the aerosol-forming materials with a moisture content that is significantly above equilibrium moisture. For example, tobacco whose equilibrium moisture is about 10% to 12% can be used with a moisture content of 20%. In this case, suitable packaging must be used to ensure that no moisture loss occurs until use.

The electrically conductive wrapper 3 may consist of paper or foil tobacco provided with conductive additives (such as metals or graphite/carbon) or a plastic foil also made conductive by additives. A multi-layered wrapper can also be used, whereby the inner layer can consist of paper or foil tobacco and the outer layer is made of one of the mentioned conductive materials.

It is also possible to first form the wrapper from a non-conductive material and then apply a conductive film before or after wrapping the aerosol-forming material, e.g. by vaporizing or spraying.

The production of substrate portions 1 can be carried out in a simple manner on a conventional cigarette strand machine: First, a continuous strand of tobacco or substitute material is formed in a format part; this is surrounded by the conductive wrapping material supplied by a bobbin in the manufacturing direction and glued to a seam. Then it is cut to the desired dimensions. Another possibility of manufacturing is extruding a suitable aerosol-forming material through a circular nozzle with subsequent wrapping and severing of the extrudate.

Preferably, the diameter of a substrate portion 1 is in the range of 5 mm to 12 mm and the length is in the range of 10 mm to 100 mm. Diameters from 5 mm to 10 mm and lengths from 15 mm to 60 mm are particularly preferred.

In a preferred embodiment, as shown in Figure 2a, the substrate portion 1 is connected to a mouthpiece 10 by a common wrapper 11. The manufacture of such a composite is familiar to the skilled person of filter cigarette manufacturing. The substrate portion 1 can additionally have an increased electrical conductivity in zones 12 compared to the remaining wrapper, which can be achieved, for example, by wrapping with metal foil in the zones 12 in order to improve the electrical contact with the contacts in an inhaler device (see below).

While in the embodiment of the substrate portion according to Fig. 2a the substrate portion is configured as a single contiguous thermal resistor, further embodiments of the substrate portion provide a segmented or sectioned division of the electrical conductivity of the wrapper. This can be done, for example, as shown in Figure 2b or as shown in Fig. 2c.

The cladding of the substrate portion according to Figure 2b has a number of annular zones 13 with relatively high electrical conductivity, wherein two adjacent zones 13 are each separated by an insulating zone. Each of the zones 13 forms a separate thermal resistor, which can be supplied with current individually via corresponding contacts in the inhaler device in an inhaler device, which is adapted to the substrate portion. The location of such contacts is indicated in Fig. 2b by arrows as well as the polarities “+” and [sic: “-”]. In one variant of this embodiment, the individual zones 13 do not run over the entire circumference of the substrate portion, but rather each have an insulating interruption.

In another variant, the zones 13 are assembled in an electrically conductive zone extending along the substrate portion, which runs, for example, along the contact points (or the contact points "+") according to Fig. 2b, so that only one contact must be present in the inhaler device for this pole in the type of a ground connection.

In the embodiment of a substrate portion shown in Figure 2c, the cladding of the substrate portion has a number of electrically conductive zones 15 in circumferential direction offset from one another and isolated from one another. The zones 15 serving as separate heating resistors extend over the length of the substrate portion. In an end region of the substrate portion, they are electrically conductively assembled by an annular contact zone 14, wherein the electrical resistance of the contact zone 14 is preferably smaller than that of a zone 15. At this end, only one "-" contact is required in an inhaler device that is adapted to the substrate portion, while on the other end a number of contacts are provided, which are marked with arrows and marked with "+" in Fig. 2c. The "+" contacts allow a separate control of the zones 15. In order to ensure the required orientation of the substrate portion in the inhaler device in a defined angular position, a positioning device in the form of a notch 16 is provided in the exemplary embodiment, into which a corresponding guide projection on the inhaler device engages when the substrate portion is inserted into the inhaler device.

An exemplary embodiment of an inhaler device (hereinafter referred to as a smoking device) is described in the following based on Figure 3. This smoking device is configured for use with a substrate portion according to Fig. 2a.

As shown in Figure 3, there are two contacts (electrodes) 21 and 22 in a housing 20 via which contact is made to the conductive wrapper of a substrate portion received by the smoking device. The cavity inside the housing 20 and the contacts 21 and 22 form a receiving device for holding the substrate portion. Air may be drawn through an opening 24 through the substrate portion. Via an electrical connection 25, the contact 21 is directly connected to a supply unit 30 arranged in a separate housing. The connection to the contact 22 is via a switch 23, which can be used to close the circuit. The supply unit 30 includes a battery or accumulator 31, and optionally a controller 32. In the case of an accumulator, it can be charged via plug contacts 33.

Use of the smoking device is as follows: The smoking device is connected to the supply unit 30 via a cable (connection 25) (see also Figure 4b). The substrate portion 1 provided with the mouthpiece 10 is pushed into a conical opening on one of the end faces of the housing 20 until it reaches a stop at the contact 21, see Figure 3. The smoking device is now guided to the mouth and the switch 23 is actuated. By closing the circuit, the substrate portion is heated by the current flowing through the contacts 21 and 22 through the wrapper acting as a thermal resistor, and the resulting aerosol can be extracted through the mouthpiece 10. Shutdown occurs by releasing the switch 23 or by the controller 32. In this way, several puffs can be extracted. After use, the substrate portion 1 with the mouthpiece 10 is removed from the smoking device and disposed of. From time to time, a battery change or charging of the accumulator 31 in the supply unit 30 is necessary.

Figure 4a shows another embodiment of the system, which differs from the previous one in that the mouthpiece 10' and the substrate portion 1' are not connected to one another.

The mouthpiece 10' is inserted into a base 42, which is screwed to the housing 40 after insertion of the substrate portion 1' into a smoking device comprising a housing 40. The base 42 also serves as a contact. The function and use of this smoking device and the remaining components of the system are otherwise in accordance with the previous exemplary embodiment. In Figure 4a, the second contact with 41, the switch with 43, the opening for the air supply with 44, the connecting cable with 45, the supply unit with 30', the battery or accumulator with 31', the control with 32' and the plug contacts with 33' are designated.

The use of the smoking product is shown in Figure 4b. The smoking device with mouthpiece and substrate portion can be handled like a conventional cigarette; the supply unit is preferably carried in a breast pocket, belt holder or similar. Both parts are connected to each other by a highly flexible cable (connecting cable 45) of sufficient length.

A one-piece embodiment of the smoking device having a cigar-like shape is shown in Figure 5. A housing 50 has a screw-off cap 53 at the front end through which a battery or accumulator 51 can be replaced. A pivoting flap 52, which is also drawn in a pivoted state, serves to insert a substrate portion 1". When the flap 52 is opened, a receiving part 55 is simultaneously moved backwards against the force of a coil spring 56 via a linkage not shown, in order to facilitate the insertion of the Substrate portion 1". The force of the coil spring 56 acting when the flap 52 is closed causes a fixation of the substrate portion 1" between a contact 57 and the receiving part 55, which simultaneously serves as a counter-contact. By closing a switch 60, current flows between the contacts 55, 57 via the conductive wrapper of the substrate portion 1", so that it is heated. The smoke aerosol can be extracted by dragging on a mouthpiece 10" inserted into the receiving part 55, which is designed as a separate component and in this exemplary embodiment is not firmly connected to the substrate portion 1". Air flows through a channel 54 and enters the substrate portion 1" on the front face of the substrate portion 1".

In a smoking device, which is configured for the use of a substrate portion according to Fig. 2b or according to Fig. 2c, there are contacts that are paired with a zone 13 or 15 serving as a thermal resistor. If, as described above, a common pole is electrically conductively combined, only one contact is required. By sequentially supplying power to one zone 13 and 15 respectively, a new part of the substrate portion can be heated respectively, thereby achieving a more uniform aerosol yield over the puffs. This results in a largely constant taste offer per puff. The control can be carried out, for example, via a puff detector, which reacts to the pressure change when the user announces air and causes the power supply to one of the zones 13 or 15 via a switching device. On the next puff, the switching device responds again, but an electronic circuit ensures that the heating current is applied to another, not yet used zone 13 or 15, etc., via the assigned contacts this time.

All principles known to the skilled person from the cigarette industry are generally applicable for the design of the mouthpiece 10, 10' or 10”. In the simplest case, the mouthpiece consists of a hollow paper or cardboard roll. However, the embodiment as a filter mouthpiece is preferred. In this case, a filter material such as cellulose acetate, polypropylene or paper is provided with a single or multi-layer wrapper. A construction corresponding to the known multi-filters can also be used, in which several segments with different properties are arranged one behind the other in the axial direction and connected by an outer wrapper.

In this case, one or more segments may be provided with axial holes. In all of the aforementioned constructions, there is also the possibility of using a zone-perforated wrapper or a subsequent perforation of the wrapper, e.g. with the aid of a laser beam. This allows the smoke to be diluted in the puffs by adding outside air.

Further variants of the system or its components result directly from the claims.

Below is another example of a substrate portion with mouthpiece and its use in the system.

Example:

An American Blend Tobacco Blend containing

30% Burley tobacco
40% expanded Virginia tobacco
20% unexpanded Virginia tobacco and
10% Oriental tobacco

was conditioned and sprayed with 12 wt.-% of an aqueous casing with a glycerin content of 80 wt.-%. The tobacco was then cut at 0.8 mm cutting width and dried to a moisture of 12%. 180 kg of this cutting tobacco was mixed with 20 kg of expanded stem cuttings.

A continuous strand with a diameter of 6 mm and a packing density of 200 mg/ml was produced from this mixture on a cigarette strand machine. An air-impermeable paper made conductive by graphite additive was used as the wrapping material. The continuous strand was cut into individual portions of 40 mm in length and these were connected to an acetate filter plug in a known manner by a tipping paper.

The substrate portion thus obtained was smoked in a smoking device according to Figure 3 without visible amounts of sidestream smoke being produced. The taste was assessed by subjects as uniform and equivalent to conventional cigarettes.

Claims

1. A system for delivering an inhalable aerosol comprising -
a substrate portion (1; 1'; 1”) comprising at least one thermal resistor (3; 13; 15) and containing aerosol-forming material (2) within a wrapper (3), the wrapper (3) comprising an air inlet opening and an aerosol outlet opening, and

- an inhaler device comprising a housing (20; 40; 50), a receiving device for holding the substrate portion (1; 1'; 1”) and contacts (21, 22; 41, 42; 55, 57) connected or connectable to a voltage source (31; 31'; 51) for supplying electrical power to the at least one thermal resistor (3; 13; 15) of the substrate portion (1; 1'; 1”).

2. System according to claim 1, characterized by a mouthpiece (10; 10'; 10”), which is separately (10'; 10”) connectable to the inhaler device or connected to the substrate portion (1) and in the operating state is in communication with the aerosol outlet opening of the substrate portion (1; 1'; 1”).

3. System according to Claim 1 or 2, characterized in that the wrapper (3) of the substrate portion (1; 1'; 1”) is at least partially electrically conductive and is configured as at least one thermal resistor (3; 13; 15).

4. System according to Claim 3, characterized in that the wrapper (3) of the substrate portion is configured as a single contiguous thermal resistor.

5. System according to Claim 3, characterized in that the substrate portion has a longitudinal axis and the wrapper of the substrate portion has a number of axially offset and insulated heating resistors (13), which are preferably electrically conductively combined in a zone extending along the substrate portion.

6. The system of claim 3, characterized by the substrate portion has a longitudinal axis and the wrapper of the substrate portion has a number of heating resistors (15) offset from one another in the circumferential direction and insulated from one another, which preferably extend over the length of the substrate portion and which are preferably electrically conductively assembled in an end region (14) of the substrate portion, wherein the substrate portion preferably comprises a positioning device (16) adapted to the inhaler device for insertion into the inhaler device in a defined angular position.

7. System according to any one of Claims 3 to 6, characterized in that the wrapper (3) of the substrate portion (1; 1'; 1") comprises metal foil, metal-coated or metal-containing paper, carbon-containing paper, graphite-containing paper, an electrically conductive film, plastic foil provided with conductive additives and/or foil tobacco provided with conductive additives.

8. System according to any one of Claims 3 to 7, characterized in that the wrapper (3) of the substrate portion (1; 1'; 1") comprises a plurality of layers of wrapper materials, wherein the outer layer comprises electrically conductive material and the inner layer preferably consists of paper or foil tobacco.

9. System according to any one of Claims 3 to 8, characterized in that the wrapper (3) of the substrate portion (1; 1'; 1") in the area between the contact points to the two contacts (21, 22; 41, 42; 55, 57) of the inhaler device associated with a thermal resistor (3; 13; 15) has an electrical resistance of 0.1 Ohm to 1000 Ohm.

10. System according to any one of Claims 3 to 9, characterized in that the zones (12) of the wrapper (3) of the substrate portion (1) that can be brought into contact with the contacts (21, 22; 41, 42; 55, 57) of the inhaler device have an increased electrical conductivity compared to the remaining material of the wrapper (3), preferably by metal coating.

11. System according to any one of Claims 1 to 10, characterized in that the substrate portion (1; 1'; 1") has a cylindrical shape with a length of 10 mm to 100 mm, preferably from 15 mm to 60 mm, and a diameter of 4 mm to 12 mm, preferably from 5 mm to 10 mm.

12. System according to any one of Claims 3 to 10 and according to Claim 11, characterized in that the at least partially electrically conductive wrapper (3) of the substrate portion (1; 1'; 1") is arranged as a cylinder barrel and the end faces of the cylinder are configured as an air inlet opening and as an aerosol outlet opening.

13. System according to any one of Claims 1 to 12, characterized in that the aerosol-forming material (2) of the substrate portion (1; 1'; 1") comprises tobacco cut, tobacco cut, foil tobacco cut and/or an extruded tobacco material.

14. System according to any one of Claims 1 to 13, characterized in that the aerosol-forming material (2) of the substrate portion (1; 1'; 1") comprises a carrier material loaded with aromatic substances.

15. System according to any one of Claims 1 to 14, characterized in that the aerosol-forming material (2) of the substrate portion (1; 1'; 1") contains an evaporable polyol, preferably glycerol or propylene glycol, at a proportion of 5 wt.% to 50 wt.%, preferably from 10 wt.% to 30 wt.%.

16. System according to any one of Claims 1 to 15, characterized in that the inhaler device comprises at least one switch (23; 43; 60) for the at least one thermal resistor (3; 13; 15).

17. System according to any one of Claims 1 to 16, characterized in that the inhaler device comprises a puff detector, which is configured together with a switching device to switch the circuit leading through a thermal resistor (3; 13; 15) of the substrate portion (1; 1'; 1") depending on the flow laxity directed at the air inlet opening of the substrate portion (1; 1'; 1").

18. System according to any one of Claims 1 to 17, characterized in that the inhalation device comprises a circuit, preferably an electronic circuit (32; 32'), for controlling the power output by the at least one thermal resistor (3; 13; 15) of the substrate portion (1; 1'; 1").

19. System according to Claim 18 in conjunction with Claim 4, characterized in that the circuit (32; 32') of the inhalation device is configured to control the voltage or current for the thermal resistor (3) of the substrate portion (1; 1'; 1") in such a way that the heating power is set to a higher value on the first puff than on the following puffs, as well as to interrupt the power supply after a defined puff time to avoid overheating.

20. System according to Claim 18 in conjunction with Claim 5 or 6, characterized in that the circuit (32; 32') of the inhalation device is configured to control contacts associated with the individual heating resistors (13; 15) sequentially for the sequential switching on of the individual heating resistors (13; 15).

21. System according to any one of Claims 18 to 20, characterized in that the circuit is housed inside the housing of the inhaler device.

22. System according to any one of Claims 18 to 20, characterized in that the circuit (32; 32') is housed in a separate housing (30; 30') that is connected or connectable to the housing (20; 40) of the inhaler device via a cable (25; 45).

23. System according to any one of Claims 1 to 22, characterized in that a battery or accumulator (31; 31'; 51) is provided for the power supply to the contacts (21, 22; 41, 42; 55, 57) of the inhaler device, which is housed or accommodated in the housing (50) of the inhaler device or in a separate housing (30; 30').

24. System according to any one of Claims 1 to 23, characterized in that the housing (50) of the inhaler device has a cigar-like shape.

25. System according to any one of Claims 1 to 23, characterized in that the housing (20; 40) of the inhaler device has a cigar-like shape.

26. System according to any one of Claims 2 to 25 in conjunction with Claim 2, characterized in that the mouthpiece (10; 10'; 10”) has a length of 10 mm to 50 mm and a diameter of 4 mm to 12 mm.

27. System according to any one of Claims 2 to 26 in conjunction with Claim 2, characterized in that the mouthpiece (10; 10'; 10”) comprises a hollow paper or cardboard sleeve.

28. System according to any one of Claims 2 to 26 in conjunction with Claim 2, characterized in that the mouthpiece (10; 10'; 10”) is designed as a filter mouthpiece, wherein the filter material preferably comprises cellulose acetate, paper, myria and/or polypropylene with a single or multi-layer paper wrapper.

29. System according to Claim 28, characterized in that the mouthpiece (10; 10'; 10”) comprises a filter plug consisting of a plurality of sub-elements arranged one behind the other in axial direction, preferably one or more axial bores.

30. System according to any one of Claims 2 to 29 in conjunction with Claim 2, characterized in that the mouthpiece (10; 10'; 10”) comprises one or more perforation zones.

31. System according to any one of Claims 2 to 30 in conjunction with Claim 2, characterized in that the substrate portion (1) and the mouthpiece (10) have a similar diameter and are connected to each other.

32. System according to Claim 31, characterized in that the substrate portion (1) and the mouthpiece (10) are connected to a tipping paper by a common wrapping (11).

33. Inhaling device, with a housing (20; 40; 50), with a holding device for holding a substrate portion (1; 1'; 1”) comprising an aerosol-forming material, and with contacts (21, 22; 41, 42; 55, 57) connected or connectable to a voltage source (31; 31'; 51) for supplying electrical power to at least one thermal resistor of the substrate portion (1; 1'; 1”).

34. Inhaling device according to Claim 33, characterized by features of the inhaler device from one of Claims 16 to 25.

35. A substrate portion configured for use with an inhaler device according to claim 33 or 34 comprising at least one thermal resistor (3; 13; 15) and containing aerosol-forming material (2) within a wrapper (3), wherein the wrapper (3) comprises an air inlet opening and an aerosol outlet opening.

36. Substrate portion according to Claim 35, characterized by features of the substrate portion (1; 1’; 1”) from any one of Claims 3 to 15.

37. Substrate portion according to claim 35 or 36, characterized by a mouthpiece (10) connected to the substrate portion (1) and in communication with the aerosol outlet opening of the substrate portion (1).

38. Substrate portion according to Claim 37, characterized in that the mouthpiece (10; 10'; 10”) comprises features from one of Claims 26 to 32.

39. A mouthpiece configured for use with an inhaler device according to claim 33 or 34, separately connectable (10’; 10”) to the inhaler device, and in the operating state in communication with the aerosol outlet opening of the substrate portion (1’; 1”).

40. A mouthpiece according to claim 39, characterized by features of the mouthpiece (10'; 10”) of any one of claims 26 to 30.

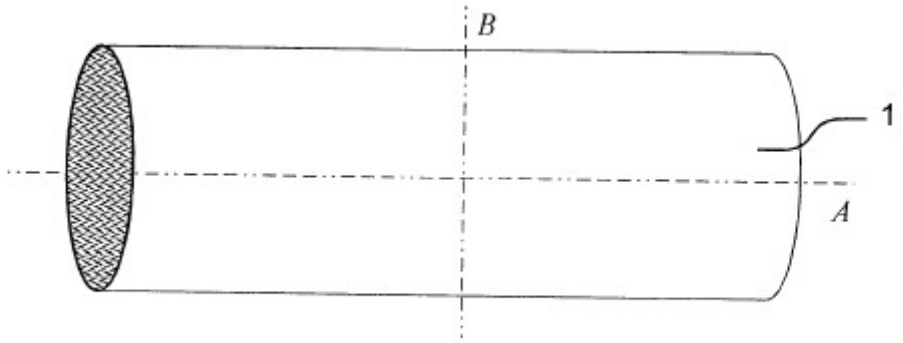


Fig. 1a

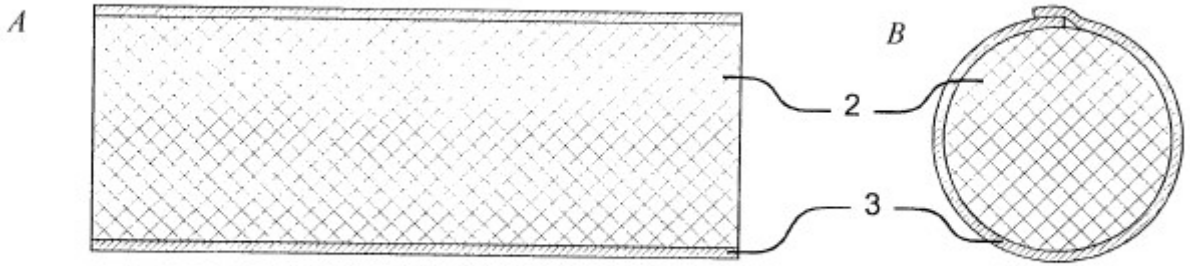


Fig. 1b

Fig. 1c

Fig. 2a

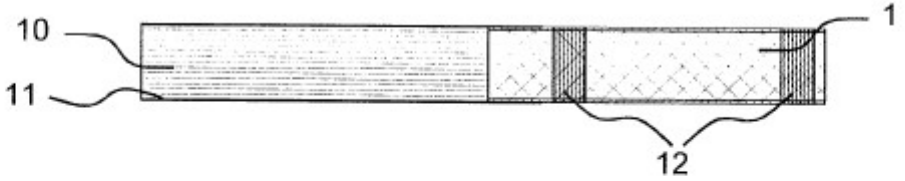


Fig. 2b

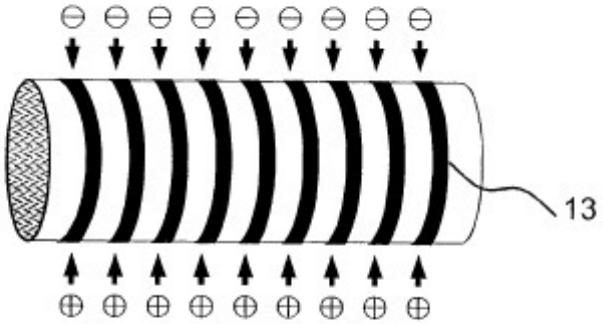


Fig. 2c

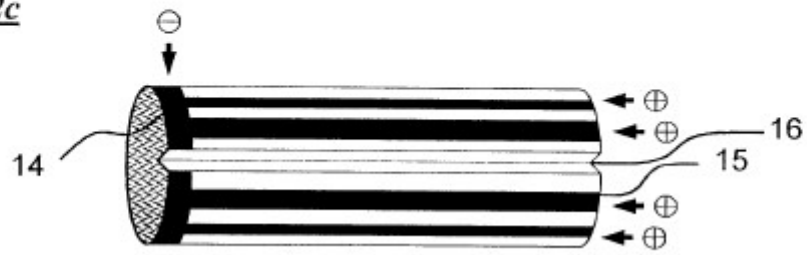


Fig. 3

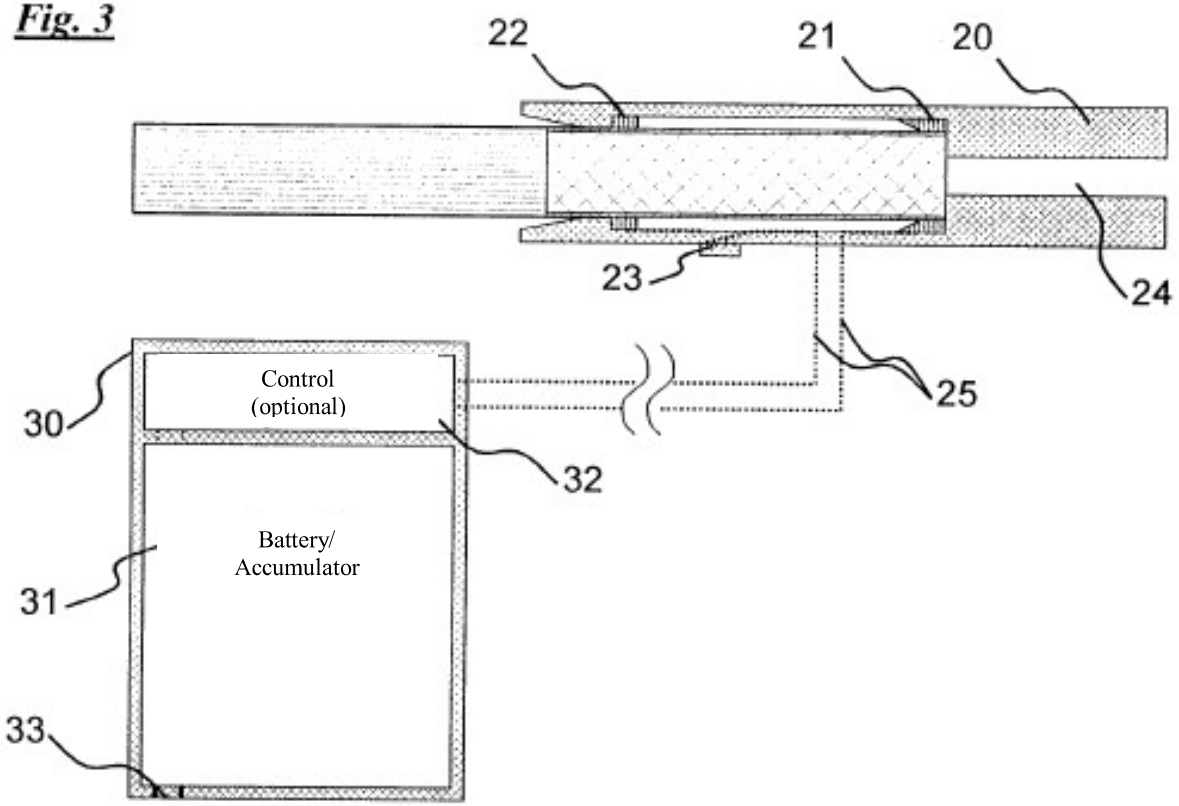

22
21
20
23
24
25
Control
(optional)
30
32
Battery/
Accumulator
31
33

Fig. 4a

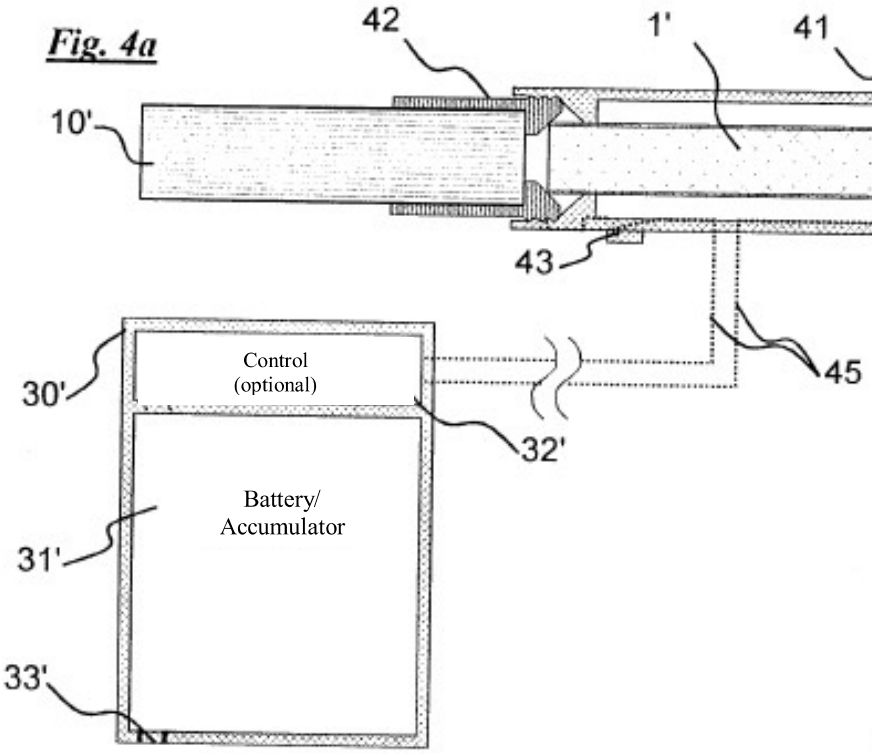

42
1'
41
40
10'
43
44
45
30'
Control
(optional)
32'
Battery/
Accumulator
31'
33'

Fig. 4b

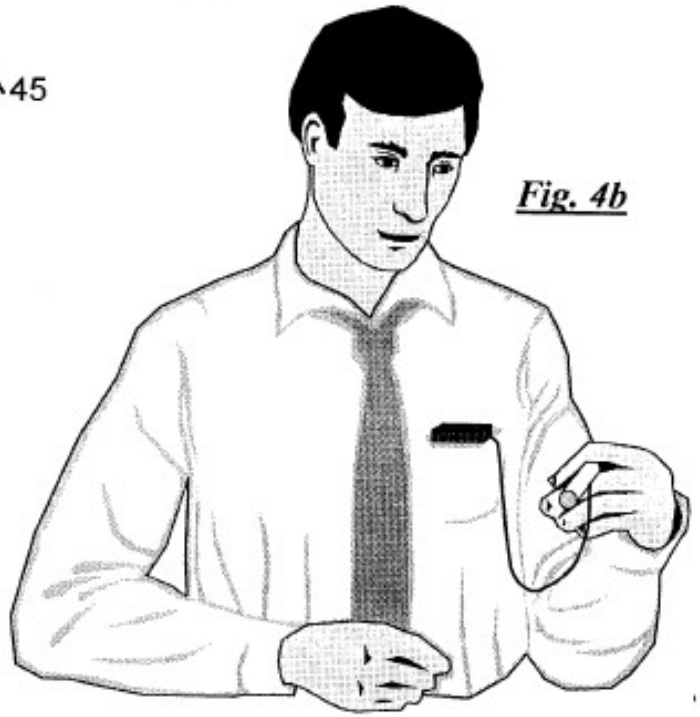
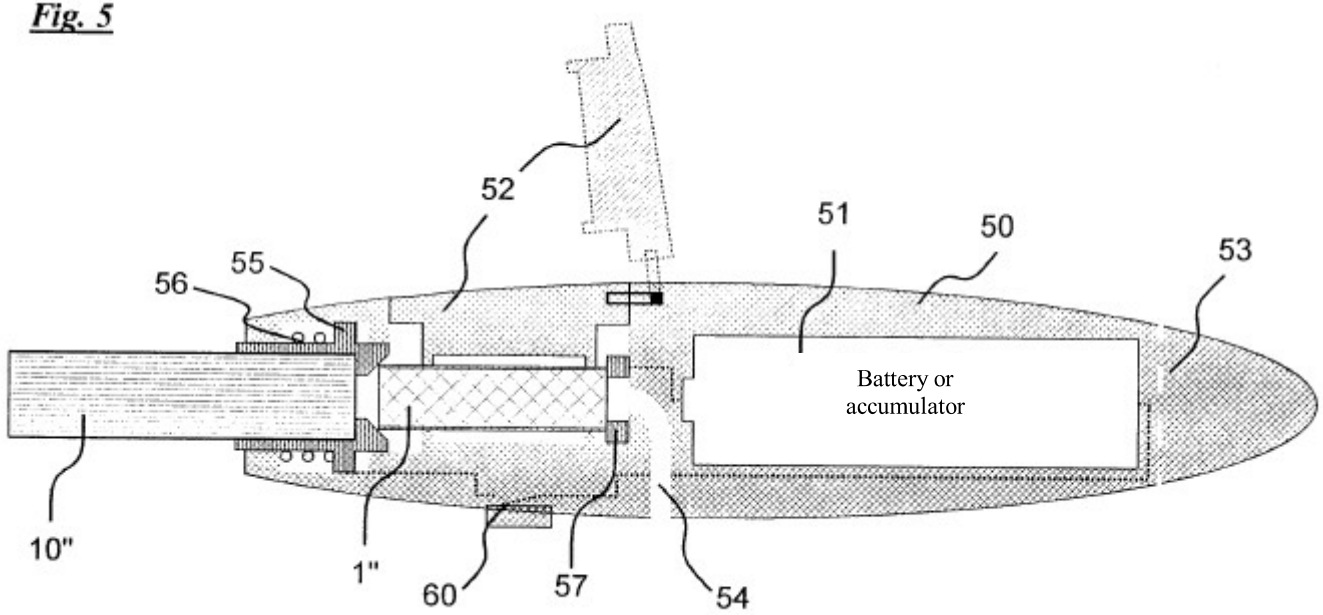


Fig. 5



INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 99/08428

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A24F47/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A24F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and. where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 503 767 A (PHILIP MORRIS PRODUCTS INC.) 16 September 1992 (1992-09-16) the whole document	1,2, 13-16, 23,25, 28,31,33
A	EP 0 488 488 A (PHILIP MORRIS PRODUCTS INC.) 3 June 1992 (1992-06-03) the whole document	1,2, 13-16, 23,25, 28,31,33

☐ Further documents are listed in the continuation of box C. ☒ Patent family members are listed in annex.

° Special categories of cited documents :

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Date of the actual completion of the international search	Date of mailing of the international search report
1 February 2000	09/02/2000
Name and mailing address of the ISA European Patent Office. P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Riegel, R

INTERNATIONAL SEARCH REPORT

International Application No
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Monique Cretier

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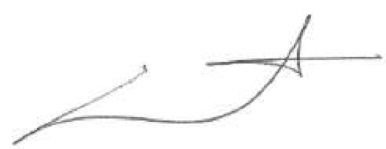

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