

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AROMA360, LLC,

Petitioner,

v.

AIR ESSCENTIALS, INC.,

Patent Owner.

Case IPR 2025-00706
U.S. Patent No. 10,583,449

**DECLARATION OF
DR. GERALD MICKLOW, Ph.D.**

Air Esscentials - Exhibit 2016
Aroma 360 v. Air Esscentials
IPR No. 2025-00706

DECLARATION OF DR. GERALD J. MICKLOW, Ph.D.

I. DECLARATION

I, Dr. Gerald J. Micklow, declare as follows:

1. I have been retained as an expert witness on behalf of Patent Owner in the above-captioned *inter partes* review.

2. I previously submitted a declaration in this proceeding. I submit this declaration to provide additional clarification regarding my prior opinions and to respond to certain issues raised by Petitioner and Dr. Christopher White concerning proposed substitute claims of U.S. Patent No. 10,583,449 (the “’449 Patent”).

3. My opinions in this declaration are based on my education, training, research, knowledge, and professional experience, as well as my review of the materials cited herein, including the ’449 Patent (Ex. 1001), Sevy (Ex. 1009), Goubet (Ex. 1016), Dr. White’s declaration(s), and the papers filed in this proceeding.

4. I understand that Petitioner and Dr. White have addressed, among other things, whether a person of ordinary skill in the art (“POSITA”) would have been motivated to modify Sevy or Goubet to include certain features recited in Patent Owner’s proposed substitute claims. I offer the opinions below from the perspective of a POSITA and based on the technical operation of the references.

Sevy (US 2010/0084484 A1)

5. I have reviewed Sevy (Ex. 1009), including its disclosure of pump 14, atomizer 16, nozzle 92, siphon tube 96, cavity 116, orifice 118, exit orifice 119, separator 120, and wall 121.

6. In my opinion, a POSITA would not have been motivated to modify Sevy's apparatus by adding a drip tube at the interface between Sevy's atomizer/diffusion structure and its container or reservoir in the manner contemplated by Patent Owner's proposed substitute claims.

7. Sevy already discloses a specific fluid-return arrangement. In Sevy, larger droplets that cannot remain entrained in the airflow strike wall 121 and may agglomerate, drift, or drip back toward the reservoir. Ex. 1009 ¶¶ 69–70, 82–84. This return of larger droplets is part of Sevy's disclosed droplet-separation and recapture mechanism.

8. Adding a separate drip tube at the diffusion unit/container interface would not simply be a minor addition to Sevy. It would alter the way Sevy handles separated or agglomerated droplets and would introduce a separate drainage path not disclosed or suggested by Sevy's existing return mechanism.

9. A POSITA would understand that Sevy's operation depends on the spatial relationship among the atomizing components, the separator, the wall 121, and the reservoir. Adding a drip tube at the diffusion unit/container interface would

require reconfiguring that relationship and would alter the fluid-return behavior that Sevy already provides through its separator and reservoir arrangement.

10. In my opinion, such a modification would change Sevy's principle of operation because Sevy relies on internal droplet impaction, separation, and gravitational return within its integrated atomizer/reservoir configuration. Adding an additional drip tube would introduce a different fluid-management mechanism, rather than merely improving the existing one.

11. Moreover, Sevy does not disclose or suggest a sealing washer disposed between a diffusion unit and a container, or a drip tube extending through such a sealing washer to direct accumulated operative fluid into the container while minimizing contact between the sealing washer and the operative fluid. Sevy's disclosed droplet return mechanism is directed to recapturing larger droplets within its atomizer/reservoir configuration, not protecting a sealing washer from exposure to operative fluid.

12. I have also reviewed Dr. White's supplemental opinions concerning whether Sevy allegedly discloses a Venturi-style eductor arrangement in which an air jet creates suction at a fluid inlet and entrains liquid into an air stream.

13. In my opinion, Sevy does not clearly disclose the claim-specific arrangement of a fluid inlet disposed relative to the atomizer air inlet channel such

that compressed air from the compressed air source flows over the fluid inlet and into the mixing chamber, as recited in Patent Owner's proposed substitute claims.

14. Sevy discloses that air travels through channel 114 toward orifice 118 and that liquid is drawn from siphon tube 96 into the atomizing region. Ex. 1009 ¶¶ 79–82. However, Sevy's disclosure does not describe the fluid inlet as being positioned relative to the atomizer air inlet channel in the specific manner required by the proposed substitute claims.

15. A POSITA may recognize generally that Sevy uses air movement to assist in drawing liquid from the reservoir, but that general observation is not the same as disclosing the specific claimed arrangement in which compressed air from the compressed air source flows over the fluid inlet and into the mixing chamber.

16. To the extent Petitioner contends that Sevy must be modified to include a fluid inlet disposed relative to the atomizer air inlet channel such that compressed air from the compressed air source flows over the fluid inlet and into the mixing chamber, I do not believe such a modification would have been obvious to a POSITA.

17. Modifying Sevy in that manner would require redesigning the geometry of Sevy's nozzle, air passage, fluid inlet, and atomizing region. Those components are arranged in Sevy to achieve Sevy's disclosed atomization and downstream separation process. Repositioning or reconfiguring the fluid inlet so that compressed

air flows over it and into a mixing chamber in the claimed manner would alter the operating geometry of Sevy's atomizer.

18. In my opinion, such a modification would change Sevy's principle of operation. Sevy operates by drawing liquid through siphon tube 96 into the atomizer region, atomizing the liquid into droplets of various sizes, directing the air/droplet mixture toward separator 120 and wall 121, and then separating larger droplets from smaller droplets downstream. Ex. 1009 ¶¶ 69–70, 82–84. Reconfiguring Sevy to provide the claimed fluid-inlet/air-inlet/mixing-chamber relationship would change that sequence and geometry.

19. Accordingly, a POSITA would not understand Sevy to disclose, teach, or render obvious the proposed substitute claim limitations directed to a drip tube at the diffusion unit/container interface or to the particular relative positioning of the fluid inlet, atomizer air inlet channel, and mixing chamber.

20. Sevy also does not disclose or suggest an atomizer exhaust aperture spaced from a discharge port and opening laterally from a mixing chamber into a diffusion chamber along an exhaust path transverse to a direction in which operative fluid enters the mixing chamber through the fluid inlet. Sevy's atomizer, separator, and downstream flow arrangement do not provide that claimed mixing chamber/atomizer exhaust aperture/diffusion chamber relationship.

Goubet (FR 2886160 A1)

21. I have also reviewed Goubet (Ex. 1016), including its disclosure of reservoir 2, oil 3, diffuser head 4, diffusion chamber 5, compressed air inlet 6, venturi cone 7, oil inlet/dip tube 10, outlet 11, outer enclosure 12, inner enclosure 13, passage 14, droplet flow inlet 15, and outlet 16.

22. In my opinion, a POSITA would not have been motivated to modify Goubet's apparatus by adding a drip tube at the diffusion unit/container interface in the manner contemplated by Patent Owner's proposed substitute claims.

23. Goubet already discloses a droplet path and return arrangement in which droplets travel through a tortuous path involving the outer enclosure, passage, and inner enclosure before exiting to ambient air. Ex. 1016, 4:23–5:7. Goubet's structure is designed to manage droplet flow through that enclosed path.

24. Adding a separate drip tube at the diffusion unit/container interface would introduce a different liquid-return mechanism not disclosed in Goubet. Such a modification would not be a simple addition because it would alter how liquid droplets are collected, routed, and returned within Goubet's diffuser head and reservoir arrangement.

25. In my opinion, modifying Goubet to include such a drip tube would change the principle of operation of Goubet's diffuser. Goubet relies on its diffuser head geometry and tortuous droplet path to manage droplet size and discharge.

Adding a separate drip tube at the diffusion unit/container interface would modify the way liquid is handled within that system.

26. Goubet also does not disclose or suggest a sealing washer disposed between a diffusion unit and a container, or a drip tube extending through such a sealing washer to direct accumulated operative fluid into the container while minimizing contact between the sealing washer and the operative fluid. Goubet's diffuser head and reservoir arrangement manages droplets through its diffusion chamber and downstream tortuous/concentric enclosure path, not through a sealing-washer-protecting drip tube.

27. I have also reviewed Dr. White's supplemental opinion concerning whether Goubet's Venturi geometry necessarily requires positioning the dip-tube fluid inlet relative to the air-inlet path so that compressed air flows over the fluid-inlet opening and into the mixing region where entrainment and mixing occur.

28. In my opinion, Goubet does not necessarily disclose that arrangement. Goubet discloses compressed air inlet 6, venturi cone 7, and oil inlet 10, and states that air and essential oil are mixed in diffusion chamber 5. Ex. 1016, 3:31–4:22. However, Goubet's disclosure does not necessarily require that the dip-tube fluid inlet be positioned relative to the air-inlet path in the specific manner recited in Patent Owner's proposed substitute claims.

29. A POSITA would understand that Goubet discloses a general Venturi-type atomization arrangement. But a general Venturi principle does not necessarily disclose every possible spatial relationship between an air inlet path, a fluid inlet opening, and a mixing region.

30. To the extent Petitioner contends that Goubet must be modified to satisfy the claimed arrangement, I do not believe that modification would have been obvious to a POSITA. Repositioning the dip-tube fluid inlet relative to the air-inlet path would require redesigning Goubet's venturi cone, compressed air inlet, oil inlet, and diffusion chamber geometry.

31. Such a modification would change the principle of operation of Goubet's diffuser because Goubet's atomization depends on the specific relationship between its compressed air inlet, venturi cone, oil inlet, and diffusion chamber. Altering those relationships would change the way Goubet draws oil into the air stream and forms droplets in diffusion chamber 5.

32. Goubet also does not disclose or suggest an atomizer exhaust aperture spaced from a discharge port and opening laterally from a mixing chamber into a diffusion chamber along an exhaust path transverse to a direction in which operative fluid enters the mixing chamber through the fluid inlet. Goubet directs droplets from its diffusion chamber toward the reservoir and then through downstream

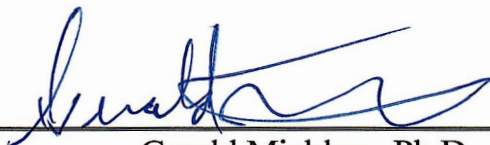
vaporization structures, which is different from the claimed lateral atomizer exhaust aperture relationship.

33. Accordingly, a POSITA would not understand Goubet to disclose, teach, or render obvious the proposed substitute claim limitations directed to a drip tube at the diffusion unit/container interface or to the particular relative positioning of the dip-tube fluid inlet, air-inlet path, and mixing region.

II. OATH

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: May 15, 2026

By: 
Gerald Micklow, Ph.D.