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3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			LEE, MICHELLE J	
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* JEFFREY L. HAMER, KENNETH F. TEETERS, and  
RAVI THOMAS

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Appeal 2020-001383  
Application 14/282,252  
Technology Center 3700

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Before KEVIN F. TURNER, DANIEL S. SONG, and BRETT C. MARTIN,  
*Administrative Patent Judges.*

SONG, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), the Appellant<sup>1</sup> appeals from the Examiner's decision to reject claims 1–11 and 13–22. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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<sup>1</sup> We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42(a). The Appellant identifies the real party in interest as 3M Innovative Properties Company. Appeal Br. 2.

CLAIMED SUBJECT MATTER

The claims are directed to an earplug. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. An earplug, comprising:
  - a stem extending from a first end to a second end along a longitudinal axis, wherein the stem comprises a core made of a first material and an outer layer made of a second material;
  - a sound attenuating body attached to the stem, the sound attenuating body comprising a leading end, a base end, the longitudinal axis extending between the leading end and the base end, and a flange extending at least partially over the stem and comprising an exterior flange surface and an interior flange surface having a plurality of one or both of protrusions or recesses, wherein the core of the stem extends from the second end of the stem to the leading end of the sound attenuating body; and
  - a flange cavity comprising a continuous volume around a perimeter of the stem between the interior flange surface and the stem;
  - wherein a distance between the interior and exterior flange surfaces varies around a perimeter of the flange at a plane intersecting the flange transverse to the longitudinal axis.

Appeal Br., Claim App. 1.

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Heilmann	US 5,928,744	July 27, 1999
Tiemens	US 6,659,103 B2	Dec. 9, 2003
Seville	US 2006/0162992 A1	July 27, 2006
Jenkins	US 2007/0221232 A1	Sept. 27, 2007
Falco	US 7,314,047 B2	Jan. 1, 2008
Cortez	US 2009/0038625 A1	Feb. 12, 2009
Urso	US 7,664,282 B2	Feb. 16, 2010
Mulvey	US 2013/0161119 A1	June 27, 2013

## REJECTIONS

The Examiner rejects various claims under 35 U.S.C. § 103 as follows:

1. Claims 1 and 22 unpatentable over Falco in view of Tiemens. Final Act. 4.
2. Claims 1–4, 6–11, 14, 18, and 21 unpatentable over Cortez in view of Tiemens and Urso. Final Act. 7.
3. Claims 5, 19, and 20 unpatentable over Cortez in view of Tiemens, Urso, and Jenkins. Final Act. 19.
4. Claim 13 unpatentable over Cortez in view of Tiemens, Urso, and Heilmann. Final Act. 24.
5. Claim 15 unpatentable over Cortez in view of Tiemens, Urso, and Seville. Final Act. 25.
6. Claims 16 and 17 unpatentable over Cortez in view of Tiemens, Urso, and Mulvey. Final Act. 25.

## OPINION

### *Rejection 1: Claims 1 and 22*

The Examiner rejects independent claim 1, and claim 22 depending therefrom, as unpatentable over Falco in view of Tiemens. Final Act. 4. As to claim 1, the Examiner finds that Falco discloses the invention substantially as claimed, except that it “is silent on the core of the stem extending from the second end of the stem to the leading end of the sound attenuating body.” Final Act. 4–5. The Examiner relies on Tiemens for teaching an earplug having a core or stiffener that extends within the stem in the manner claimed. Final Act. 5. The Examiner concludes that it would have been obvious to one of ordinary skill in the art:

to have modified the core of the stem of Falco to extend from the second end of the stem to the leading end of the sound attenuating body, as taught by Tiemens, “so [that] forward movement of the stiffener results in it dragging the body front portion 22 into the ear canal.”

Final Act. 5 (quoting Tiemens, col. 3, ll. 25–27).

The Appellant argues that the proposed modification of the stiffening cylindrical component 15 of Falco “would render the invention of Falco unsatisfactory for its intended purpose.” Appeal Br. 9. In particular, the Appellant argues that the cylindrical component of Falco must not only extend at least partially in the front portion, but also be bonded to the body of the earplug as disclosed in Tiemens, in order to support the rationale of dragging the body front portion into the ear canal as articulated by the Examiner. Appeal Br. 10–11; *see also* Appeal Br. 11–12 (arguing that the Examiner’s reliance on length of the stiffening component and friction, without bonding, would fail to result in the dragging of the body front portion); *see also* Reply Br. 2–4.

According to the Appellant, “Falco describes that the component received within the stem 12 may comprise various diameters and lengths to provide the earplug with the effect desired,” and thus, “**the intended purpose of the component 15 of Falco is to provide varying effects to the earplug (e.g., varying stiffness) depending on the size of the component received within the cavity 13 of the stem 12.**” Appeal Br. 9 (citing Falco, col. 5, ll. 44–46). Based on this assertion, the Appellant argues that when Falco is modified so that the core is bonded, Falco would be rendered unsatisfactory for its intended purpose of allowing cylindrical components of a variety of different sizes being inserted from the cavity to provide varying effects. Appeal Br. 11–12.

The Appellant's argument is unpersuasive because it is premised on an erroneous understanding of the disclosure of Falco. The Appellant's assertion as to the intended purpose of Falco is derived from Falco's statement "[s]imilarly, the component received within stem 12 may comprise various diameters and lengths to provide the earplug with the effect desired." Falco, col. 5, ll. 44–46. This statement is not in reference to the stiffening component being removed and replaced with another that is of different diameter and lengths. Rather, Falco is disclosing that in designing and manufacturing of its disclosed earplugs, stiffening components having different diameters and lengths can be used to attain the desired effect. In other words, Falco is teaching that the diameter and the length of the stiffening component are selectable during manufacturing thereof. The correctness of this understanding of Falco is established by the fact that the cited disclosure that begins with "[s]imilarly," thereby referencing the preceding disclosure, which states:

It is understood that the diameter of stem 12 is variable and may assume a range of different sizes depending upon the particular effect sought and upon the particular component sought to be received with in stem 12. Further, the various first, second, and third portions 24, 26, and 28 of stem 12 may be sized, in diameter and in length, variously with respect to one another.

Falco, col. 5, ll. 37–43.

This disclosure is not teaching that the user can somehow adjust the diameter and sizes of the stem and the first, second, and third portions (as would be the case if the Appellant's interpretation is correct), but instead, is simply disclosing that these dimensions may be designed and selected to manufacture earplugs to attain the desired effect, i.e., comfort, attenuation and ease of use. *See also* Falco, col. 6, ll. 14–22. In that regard, Falco does

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not disclose the user somehow altering the sizes of the stem or the three portions, or removing and replacing a cylindrical component with a different one.

Therefore, whether the stiffening component of the modified Falco is bonded or not is not dispositive because even if the stiffening component of Falco must be bonded as the Appellant asserts, such bonding of the stiffening component does not destroy the intended purpose of Falco's earplug as asserted by the Appellant. Accordingly, the premise of the Appellant's argument that the suggested modification to Falco's earplug would render it unsuitable for its intended purpose is based on an incorrect understanding of Falco, and as such, we are not persuaded of Examiner error.

Thus, in view of the above considerations, we affirm the Examiner's rejection of claims 1 and 22.

*Rejection 2: Claims 1–4, 6–11, 14, 18, and 21*

The Examiner rejects claims 1–4, 6–11, 14, 18, and 21 as unpatentable over Cortez in view of Tiemens and Urso. Final Act. 7. As to independent claim 1, the Examiner finds that Cortez discloses in the invention substantially as claimed, but “is silent on the core of the stem extending from the second end of the stem to the leading end of the sound attenuating body.” Final Act. 7–8. The Examiner again relies on Tiemens to conclude that it would have been obvious to one of ordinary skill in the art to have modified the core or insert 60 of the stem of Cortez to extend in the manner claimed. Final Act. 8. The Examiner also concludes that, in view of Urso's disclosure, it would have been further obvious to one of ordinary skill to provide protrusions and/or recesses as claimed. Final Act. 9.

The Appellant argues that the proposed modification of the insert 60 of Cortez “would render the invention of Cortez et al. unsatisfactory for its intended purpose.” Appeal Br. 16. In particular, the Appellant argues that the insert of Cortez must be bonded as disclosed in Tiemens, in order to support the rationale of dragging the body front portion into the ear canal as articulated by the Examiner. Appeal Br. 15–16; *see also* Reply Br. 5–7.

The Appellant argues that because Cortez “describes that the insert 60 expands the stem at a first location such that the stem outside surface 76 contacts the first flange 46,” which is important in blocking sound, **“the intended purpose of the insert 60 of Cortez is to expand the stem such that the stem contacts the first flange 46 and the contact between the stem and the first flange 46 blocks sound.”** Appeal Br. 15, citing Cortez ¶¶ 2, 15. Accordingly to the Appellant, when Cortez is modified so that its insert is bonded, it is rendered unsatisfactory for its intended purpose because such bonding of the insert **“would prevent the insert 60 from expanding the stem such that the stem contacts the first flange to block sound from entering the ear canal,** which, as described herein, is an **express, intended purpose of the insert 60 of Cortez.”** Appeal Br. 17.

We are not persuaded by the Appellant’s argument. Cortez does disclose the importance of the shell internal flange and the stem contacting each other in blocking sound, this contact being attained by the insert that “expands location on the stem into contact with a flange or into a close sliding fit of the stem.” Cortez ¶ 2. However, such expansion is attained upon inserting the insert into the stem as the earplug is made. *See generally* Cortez ¶ 2. Indeed, Figure 2 of Cortez shows the complete earplug with the insert inserted into the stem of the earplug so as to expand the stem, and Figure 3 shows this completed earplug inserted into the user’s ear canal.

Cortez, Figs. 2, 3. Cortez also discloses that “[t]he insert [60] is of stiffer material than that of the stem, and helps stiffen the stem to prevent stem column collapse *during earplug insertion*,” thereby clearly disclosing that the insert is present when the earplug is used by the end user. Cortez ¶ 11 (emphasis added).

Accordingly, it is not apparent how bonding of the insert of Cortez after the insert is inserted into the stem of the earplug would “prevent the insert 60 from expanding the stem” as asserted by the Appellant considering that the stem would already be expanded by virtue of the insert having been inserted into the stem. Indeed, one cannot bond the insert within the stem unless the insert is first received within the stem. Thus, bonding of the insert of Cortez does not have any bearing as to the expansion of the stem because the stem has already been expanded by virtue of its receipt of the insert.

Therefore, whether the insert of the modified Cortez is bonded or not is not dispositive because even if the insert of Cortez must be bonded as the Appellant asserts, such bonding of the insert does not destroy the intended purpose of Cortez’s earplug as asserted by the Appellant.

The Appellant also argues that “*the insert 60 is clearly adapted to move relative to the stem passage 60.*” Appeal Br. 18 (emphasis added). However, we find no basis for this assertion as Cortez does not disclose the insert 60 being removed or inserted by the end user of the earplug. Aside from the initial insertion of the insert into the stem when the earplug is made, Cortez does not disclose any movement of the insert relative to the stem. *See generally* Cortez ¶ 13 (“The insert 60 cannot be readily grasped, so a person does not grasp it to pull out the earplug.”).

Therefore, we are not persuaded of error in the Examiner’s rejection of claim 1. The Appellant does not submit any arguments directed to claims

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2–4, 6–11, 14, and 21, and instead, merely relies on ultimate dependency on claim 1 for patentability. Appeal Br. 18–19. Accordingly, these claims fall with claim 1 as well.

*Rejection 3: Claims 5, 19, and 20*

The Examiner rejects claims 5, 19, and 20 as unpatentable over Cortez in view of Tiemens, Urso, and Jenkins. Final Act. 19. The Appellant’s arguments in support of patentability are same as those submitted with respect to Rejection 2, and are directed to the combination of Cortez and Tiemens. Appeal Br. 21–23; *see also* Reply Br. 8–10. Accordingly, having been unpersuaded of any deficiency in the Examiner’s combination of Cortez and Tiemens, we affirm this rejection as well.

*Rejections 4–6: Claim 13 and 15–17*

The Appellant does not submit any arguments directed to claims 13 and 15–17 that are subject of Rejections 4–6, and instead, the Appellant merely relies on their ultimate dependency on independent claim 1 for patentability. Appeal Br. 25–26. Thus, these rejections of claims 13 and 15–17 are also affirmed.

CONCLUSION

The Examiner’s rejections are affirmed.

DECISION SUMMARY

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1, 22	103	Falco, Tiemens	1, 22	
1-4, 6-11, 14, 18, 21	103	Cortez, Tiemens, Urso	1-4, 6-11, 14, 18, 21	
5, 19, 20	103	Cortez, Tiemens, Urso, Jenkins	5, 19, 20	
13	103	Cortez, Tiemens, Urso, Heilmann	13	
15	103	Cortez, Tiemens, Urso, Seville	15	
16, 17	103	Cortez, Tiemens, Urso, Mulvey	16, 17	
<b>Overall Outcome</b>			1-11, 13-22	

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED