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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JENNIFER BURKHARDT, BIANCA PUCHINGER,
JUAN PABLO RODRIGUEZ CEPEDA, and OMAR HOUBLOSS

Appeal 2019-006650
Application 15/029,342
Technology Center 2800

BEFORE JEFFREY B. ROBERTSON, CHRISTOPHER C. KENNEDY,
and MICHAEL G. McMANUS, *Administrative Patent Judges*.

ROBERTSON, *Administrative Patent Judge*.

DECISION ON APPEAL¹

¹ This Decision includes citations to the following documents: Substitute Specification filed September 25, 2017 (“Spec.”); Non-Final Office Action mailed July 2, 2018 (“Non-Final Act.”); Appeal Brief filed February 18, 2019 (“Appeal Br.”); Examiner’s Answer mailed July 10, 2019 (“Ans.”); and Reply Brief filed September 10, 2019 (“Reply Br.”).

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant² appeals from the Examiner's decision to reject claims 1, 2, 4–8, and 10–17. Appeal Br. 9. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm in part.

CLAIMED SUBJECT MATTER

Appellant states the invention relates to antenna arrangements including a particular feed location and shape that provide a resonating antenna body with wideband transmission and reception characteristics. Spec. 3. Claim 1, reproduced below, is illustrative of the claimed subject matter (Appeal Br., Claims Appendix 16):

1. Antenna arrangement comprising:

- a ground-connecting part at one end,
- a shape part distal from the ground-connecting part with a curvature, the curvature having an elliptical shape,
- a slit in the curvature, and
- a feed located within the slit,

wherein the shape part has a trapezoidal part next to the curvature, the trapezoidal part extending from an end of the slit.

Claim 16 is also independent and similarly recites an antenna arrangement, except that instead of the curvature having an elliptical shape, claim 16 recites “the curvature having a heart shape.” *Id.* at 17.

² We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies Electrolux Appliances Aktiebolag as the real party in interest. Appeal Br. 3.

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Deming et al. hereinafter “Deming”	US 5,734,350	March 31, 1998
Chiba et al. hereinafter “Chiba”	JP 2000068736 A	March 3, 2000
Haneishi et al. hereinafter “Haneishi”	WO 2013/031518 A1	March 7, 2013

REJECTIONS

1. The Examiner rejected claims 1, 2, 4–8, and 10–16 under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Haneishi and Chiba. Non-Final Act. 2–3.
2. The Examiner rejected claim 17 under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Haneishi, Chiba, and Deming. Non-Final Act. 3–4.

OPINION

Rejection 1

Appellant presents arguments only with respect to claims 1 and 16 subject to this rejection. *See* Appeal Br. 12–14. Thus, we select claims 1 and 16 as representative for disposition of this rejection, with the patentability of the remaining claims standing or falling therewith. 37 C.F.R. § 41.37(c)(1)(iv).

The Examiner's Rejection

In rejecting claims 1 and 16 as obvious over Haneishi and Chiba, the Examiner found Haneishi discloses an antenna arrangement having a ground-connecting part, a shape part, a slit, a feed as recited in claims 1 and 16. Non-Final Act. 2. The Examiner found Haneishi fails to disclose a shape part with a curvature that has either an elliptical or heart shape, and wherein the shape part has a trapezoidal part next to the curvature, the trapezoidal part extending from an end of the slit. *Id.* at 2–3. The Examiner found Chiba discloses a shape part with a curvature that is “almost an elliptical shape,” and a trapezoidal part next to the curvature extending from an end of the slit. *Id.* at 3. The Examiner determined it would have been obvious to have provided Haneishi with a shape part having a curvature of an elliptical or heart shape with a trapezoidal part next to the curvature and extending from the end of the slit “for the purpose of providing a miniaturized antenna device so as to improving [sic] the antenna gain and cost.” *Id.* The Examiner determined also that it would have been obvious to have employed different shapes, because “such a modification would have involved a mere change in the shape or profile of a component,” which is “generally recognized as being within the level of ordinary skill in the art.” *Id.* The Examiner determined also that “the length or size or shape of the antenna elements is frequency dependent based on the wavelengths of the transmitting and receiving antenna devices.” Ans. 9–10.

Appellant's contentions

Appellant contends Chiba does not disclose an elliptical shape as recited in claim 1, because all the antennas described in Chiba are

asymmetrical, whereas an elliptical shape is symmetrical. Appeal Br. 12. Appellant argues there is no suggestion to modify the antenna arrangements of Haneishi or Chiba with an elliptical shape, because Chiba discloses the shape of the conductor plate is “arbitrary.” *Id.* Appellant presents a similar argument with respect to the heart shape curvature recited in claim 16. *Id.* at 13. Appellant argues the claimed trapezoidal part in combination with the elliptical shape as recited in the claims improves the resonating and transmission/reception characteristics in terms of wideband capabilities of the antenna arrangement. *Id.* at 12–13. Appellant contends the prior art discloses the antenna shape is arbitrarily selected. *Id.* at 13. As a result, Appellant contends Chiba teaches away from selecting an antenna with a specific shape and the only way to arrive at the claimed shape is by chance, which is not obviousness. *Id.*

Appellant contends none of the prior art discloses a trapezoidal part next to the curvature where the trapezoidal part extends away from the slit, because Chiba discloses continuously curved lateral edges such that no trapezoidal shape is evident. *Id.*

Issue

Has Appellant demonstrated reversible error in the Examiner’s position that an antenna arrangement with a curvature having either an elliptical shape (claim 1) or a heart shape (claim 16) and a trapezoidal part next to the curvature would have been obvious over Haneishi and Chiba?

Discussion

Claim 1

We are not persuaded by Appellant’s arguments. As to the presence of an elliptical curvature in Chiba, the Examiner has annotated Figure 14(b) and 14(d) of Chiba to show the arrangement of the curvature and trapezoidal part in the Answer, where the annotated version of Figure 14(b) is reproduced below. Ans. 8–9.

Figure 14(b)

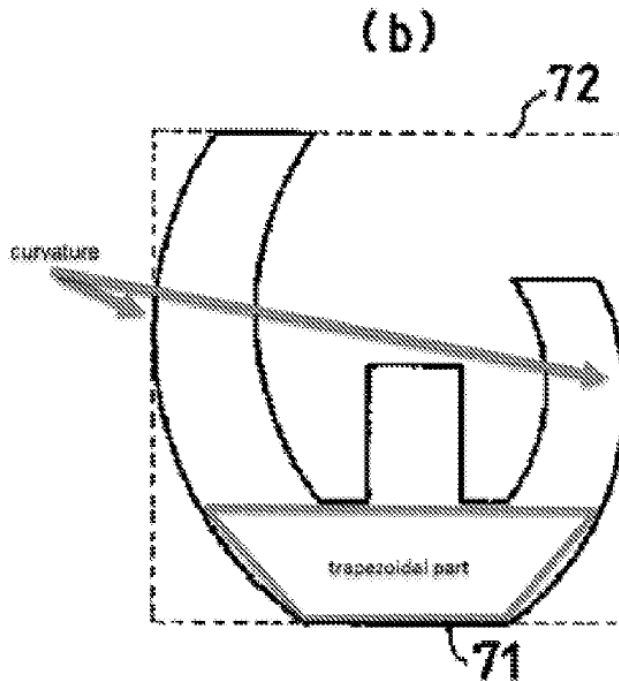
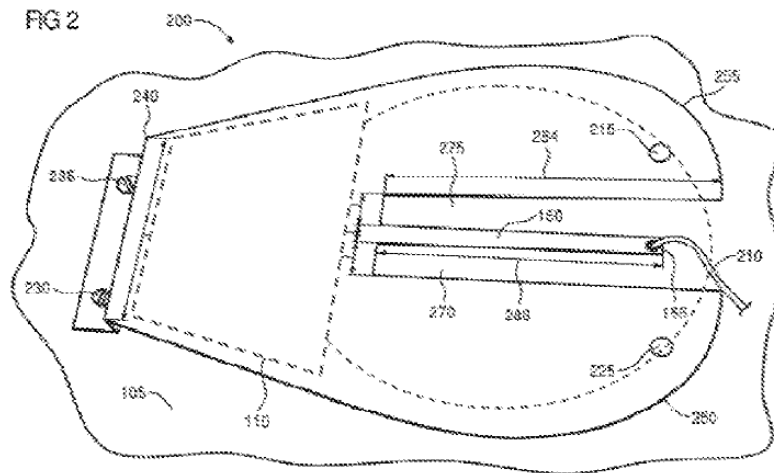


Figure 14(b) of Chiba depicts an antenna with annotations including arrows labeled “curvature” and a trapezoid labeled “trapezoidal part” provided by the Examiner. We agree with the Examiner that the curvatures depicted in Chiba are elliptical in nature as shown in the annotated Figure of Chiba such that it would have been obvious to one of ordinary skill in the art

to adjust the curvature to the extent any adjustment would be needed to meet the recitation in claim 1 of “having an elliptical shape.”

In this regard, Appellant provides an annotated drawing of Figure 2 of the present application to show an ellipse (with the dotted line corresponding to the ellipse extending across the space created by the slits) and a trapezoid reproduced below. Appeal Br. 10.



Annotated Figure 2 depicts an antenna arrangement where a broken-line ellipse has been drawn “approximating and highlighting the location of the elliptical shape” and “approximating and highlighting the location of the trapezoidal shape” in the antenna arrangement. Appeal Br. 10 nn.1, 2.

We observe that Figure 14(b) of Chiba could also be annotated to show a similar ellipse, such that in addition to the discussion above, Appellant’s arguments that Chiba’s antennas are asymmetrical as opposed to symmetrical are not persuasive.³ Such arguments do not fully consider the

³ As a result of our determination, we do not address the Examiner’s reliance in the Answer on Forster et al. (US 2003/0132893 A1) to indicate that elliptical shapes are well known shapes for antennas. Ans. 6. We observe that Forster is not included in the rejections on appeal, such that in the event

Examiner's position that one of ordinary skill in the art would have been able to adjust the shape of the antenna as desired.

Further, we are not persuaded by Appellant's argument that the Examiner's annotation to show the trapezoidal part in Chiba is not accurate because Chiba's entire side edges are continuously curved. That is, the Examiner's annotation fairly encompasses the entire portion of the portion of Chiba's antenna, which "extend[s] from an end of the slit" as recited in claim 1 to show the trapezoidal part, such that in contrast to Appellant's arguments, the Examiner's annotation is not arbitrary. The slight curvature in that portion of Chiba's antenna does not detract from the Examiner's interpretation. Indeed, if Appellant's annotated Figure 2 is sufficient to approximate an elliptical shape, we do not see a distinction between such an annotation and the Examiner's annotation of Chiba's figures to show a trapezoidal part.

As to Appellant's argument that Chiba discloses the antenna shapes are arbitrary,⁴ we agree with the Examiner that rather than teach away from

of further prosecution of the instant application and that should the Examiner rely on Forster in order to explain how antenna shapes would have been obvious, Forster should be included in any grounds of rejection to that effect.

⁴ Although both Appellant and the Examiner seem to accept that Chiba discloses the shape of the antenna is "arbitrary" (Appeal Br. 12 (citing Chiba ¶¶ 35, 51); Ans. 6), we are unable to find a full English translation of Chiba in the record, and neither Appellant nor the Examiner refers to such a full English translation. Thus, even if Chiba actually does disclose the shape of the antenna is "arbitrary," we are unable to evaluate such a disclosure in the context of the full description of Chiba. *See* MPEP § 2120(II) (explaining that when an English abstract is relied upon to support a rejection, the evidence relied upon is the facts contained in the abstract not additional facts that may be contained in the underlying full text document).

adjusting the shapes of antennas, such a disclosure would indicate that antenna shapes would have been adjusted as needed for the particular application and antenna properties as determined by the Examiner and discussed above. In this case, as the Examiner found, Haneishi, Chiba, and the instant application are all directed to planar F inverted antennas (Ans. 4, citing Haneishi, title, Abstr.; Chiba Abstr.; Spec. 4), and Appellant has not specifically addressed the Examiner's rationale that the shape of the antenna would have been adjusted in order to improve antenna gain and cost, or as needed based on the frequency and wavelength of the transmitting and receiving devices.

Accordingly, we affirm the Examiner's rejection of claim 1, and claims 2, 4–8, and 10–15 dependent therefrom as obvious over Haneishi and Chiba.

Claim 16

As to claim 16, we agree with Appellant that the Examiner has not sufficiently established that Chiba discloses a “curvature having a heart shape” as recited in claim 16. In this regard, the Examiner has not sufficiently explained how the antenna shapes of Chiba as shown in the annotated version of Figure 14(b) reproduced above, would have been modified to produce a curvature having a “heart shape” as recited in claim 16.⁵

⁵ We observe that the Specification relies on Figure 2 (reproduced above in annotated form) for a curvature that “substantially resembles a heart shape” (Spec. 9, ll. 9–10), whereas claim 16 recites “the curvature having a heart shape.” We observe that the definition of “heart shape” is “Shaped like the conventional representation of a heart, with two equal curves meeting at a

Accordingly, we reverse the Examiner’s rejection of claim 16 as obvious over Haneishi and Chiba.

Rejection 2

Appellant does not set forth separate arguments with respect to claim 17, which depends from claim 1, and is subject to Rejection 2. Appeal Br. 14.

Accordingly, we affirm the Examiner’s rejection of claim 17 for similar reasons as discussed above with respect to claim 1.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 2, 4–8, 10–16	103	Haneishi, Chiba	1, 2, 4–8, 10–15	16
17	103	Haneishi, Chiba, Deming	17	
Overall Outcome			1, 2, 4–8, 10–15, 17	16

point at the bottom and a cusp at the top.”

<https://www.lexico.com/definition/heart-shaped> (accessed September 3, 2020). Upon further prosecution, the Examiner may consider whether the scope of claim 16 is sufficiently clear/supported and whether, if claim 16 is amended, the shapes disclosed in Chiba “substantially resemble a heart shape.”

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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 IN PART