

REMARKS

In the Office Action, the Examiner (1) objected to the drawings; (2) provisionally rejected claims 1, 2, 5, 6, 11, 23, 28, and 29 under the judicially-created doctrine of obviousness-type double patenting as being unpatentable over claims of co-pending U.S. Application No. 12/099,320; (3) rejected claims 1, 3-10, 15-17, and 27 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,189,434 issued to Bell (“Bell”); (4) rejected claims 2, 11, and 28 under 35 U.S.C. § 103(a) as being unpatentable over Bell in view of U.S. Patent Application Publication No. 2006/0050009 to Ho (“Ho”); and (5) rejected claims 22 and 23 under 35 U.S.C. § 103(a) as being unpatentable over Bell in view of Ho and in further view of U.S. Patent Application Publication No. 2005/0200535 to Elkobi (“Elkobi”). Reconsideration and allowance of the application are requested.

The Examiner indicated that claims 12-14, 18-21, and 24-26 contain allowable subject matter. These claims have been rewritten as new claims 31-39, respectively. For purposes of clarification, unrelated to patentability, claims 1 and 28 have been amended to specify that the antenna structure generates diverse antenna patterns. Claims 1-39 are pending in this application.

I. Objections to the Drawings

Figures 1A-1G have been revised to include the legend “Prior Art” as requested by the Examiner. Replacement sheets for these figures are attached. The objections to the drawings should accordingly be withdrawn.

II. Double Patenting Rejections

The Examiner provisionally rejected claims 1, 2, 5, 6, 11, 23, 28, and 29 under the judicially-created doctrine of obviousness-type double patenting as being unpatentable over claims of co-pending U.S. Application No. 12/099,320. Applicants request that the rejections be held in abeyance until either the present application or U.S. Application No. 12/099,320 issues, at which time an assessment as to the necessity for a Terminal Disclaimer can be made.

III. Prior Art Rejections

The Examiner rejected claims 1, 3-10, 15-17, and 27 under 35 U.S.C. § 102(b) as being anticipated by Bell. These rejections should be withdrawn because Bell fails to disclose or suggest each and every element of the claims.

Bell discloses a hybrid circuit network for feeding multiple antenna arms. The hybrid circuit network includes a plurality of output terminals A, B, C, and D, to which four antenna arms ARM 1, ARM 2, ARM 3, and ARM 4 are coupled. See, e.g., Bell, FIG. 2A and Col. 6, lines 50-58. The hybrid circuit module couples the feed points of the antenna arms to isolate inputs in the network from one another and outputs from one another. See, e.g., Bell, Col. 4, lines 25-30.

Independent claim 1 is directed to a multimode antenna structure that includes a plurality of antenna ports and a plurality of antenna elements, each operatively coupled to a different one of the antenna ports. The multimode antenna structure also includes one or more connecting elements electrically connecting the antenna elements at a location on each antenna element that is spaced apart from an antenna port coupled thereto to form a single radiating structure such that electrical currents on one antenna element flow to a connected neighboring antenna element and generally bypass the antenna port coupled to the neighboring antenna element. Bell fails to disclose or suggest a multimode antenna structure including “one or more connecting elements electrically connecting the antenna elements at a location on each antenna element that is spaced apart from an antenna port coupled thereto to form a single radiating structure” as recited in claim 1. Bell instead couples its antenna arms together through the hybrid circuit network, which is on the opposite side of the antenna ports from the antenna elements. Bell does not disclose or suggest connecting elements electrically connecting the antenna elements at a location on each antenna element that is spaced apart from an antenna port. Therefore, Bell does not anticipate claim 1, and the rejection should be withdrawn.

Claims 3-10, 15-17, and 27 are allowable over Bell by virtue of their dependence on claim 1. The rejections of these claims should also be withdrawn.

The Examiner rejected claims 2, 11, and 28 under 35 U.S.C. § 103(a) as being unpatentable over Bell in view of Ho. Ho is cited by the Examiner for purportedly disclosing different types of communications devices and an antenna structure fabricated on a printed circuit board substrate. Office Action, pages 5. Ho fails to cure the deficiencies of Bell with respect to independent claim 1, as noted above. Accordingly, the combination of Bell and Ho do not teach each and every limitation of claims 2 and 11, which depend on claim 1. The rejection of these claims should therefore be withdrawn.

Independent claim 28 is directed to a multimode antenna structure that includes “one or more connecting elements electrically connecting the antenna elements at a location on each antenna element that is spaced apart from an antenna port coupled thereto to form a single radiating structure.” As with claim 1, Bell and Ho failed to disclose or suggest the claimed structure. Therefore, the rejection of claim 28 should also be withdrawn.

Finally, the Examiner rejected claims 22 and 23 under 35 U.S.C. § 103(a) as being unpatentable over Bell in view of Ho and in further view of Elkobi. Elkobi was cited in the Office Action for purportedly disclosing a stamped metal part including a pickup feature. Office Action, page 6. Elkobi fails to cure the deficiencies of Bell and Ho as discussed above with respect to independent claim 1. Accordingly, claims 22 and 23, which depend on independent claim 1, are allowable over the combination of Bell, Elkobi, and Ho.

CONCLUSION

Any changes to the claims in this amendment that have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

The Commissioner is hereby authorized to charge any fee deficiency associated with this submission, or credit any overpayment to Deposit Account No. 06-1448.

In the event that an extension of time is required, or that may be required in addition to that requested in any petition for an extension of time, a petition for extension is hereby made to

Application No. 11/769,565
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Reply to Office Action issued April 2, 2009

make this response timely, and the Commissioner is hereby authorized to charge any fee for such, to deposit account number 06-1448.

If a telephone conversation with Applicants' Attorney would expedite the prosecution of the above-identified application, the Examiner is urged to call the undersigned at (617) 832-1268.

Respectfully submitted,

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Attachment: Replacement Sheets for FIGS. 1A to 1G