

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MITCHELL A. MARKOW and DAVID E. GOUGH

Appeal No. 2000-1888
Application No. 08/885,984¹

ON BRIEF

Before HAIRSTON, GROSS and SAADAT, Administrative Patent Judges.
SAADAT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the Examiner's final rejection of claims 1-50, which are all of the claims pending in this application.

We affirm-in-part.

BACKGROUND

Appellants' invention relates to a directional microphone

Appeal No. 2000-1888
Application No. 08/885,984

element placed in a housing or boot wherein the boot is configured to compensate for the internal noise by adjusting the size of the openings behind the microphone element or by adding acoustic absorption material in the boot (specification, page 9).

Representative independent claim 32 and dependent claim 19 are reproduced below:

32. A portable computer microphone for receiving acoustic signals and generating a directional response associated with a desired polar pattern, comprising:

a microphone element for receiving acoustic signals; and

a boot for mounting and isolating said microphone element, said boot configured to achieve a desired microphone directional response associated with a particular polar pattern to compensate for noise sources internal to a portable computer.

19. The portable computer of claim 13, the position of said microphone element defining a front distance and a rear distance, the front distance being the distance between said microphone element and said front shell surface, and the rear distance being the distance between said microphone element and said rear shell surface, wherein said front distance and said rear distance are varied to achieve a desired microphone directional response associated with a particular polar pattern.

The references relied on by the Examiner are:

Appeal No. 2000-1888
Application No. 08/885,984

Claims 1, 3, 5, 32 and 44 stand rejected under 35 U.S.C. § 102(e) as being anticipated by McAteer.

Claims 32-36, 42-44 and 46-50 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Lundgren.

Claims 1, 2, 4-17, 23-25 and 27-31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lundgren and McAteer.

Claims 18-22, 26, 37-41 and 45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lundgren, McAteer and Baumhauer.

Rather than reiterate the viewpoints of the Examiner and Appellants, we refer to the answer (Paper No. 17, mailed May 10, 2000) for the Examiner's complete reasoning in support of the rejections, to the brief (Paper No. 16, filed December 20, 1999) and the reply brief (Paper No. 18, filed May 18, 2000) for Appellants' arguments thereagainst.

OPINION

At the outset, we note that Appellants indicate that claims

Appeal No. 2000-1888
Application No. 08/885,984

(brief, pages 3 & 4). We will, thereby, consider Appellants' claims 1-50 as these two identified groups and we will treat claims 32 and 19 as the representative claims of their corresponding groups.

Before addressing the arguments made by the Examiner and Appellants, we also note that Appellants choose to argue each ground of rejection with respect to the group of claims corresponding to that rejection. Therefore, we address each ground of rejection separately and limit our review to the representative claim of the group argued by Appellants.

35 U.S.C. § 102 Rejection over McAteer

With respect to group A claims, Appellants argue that claim 32 recites configuring a microphone boot to achieve a customized polar response pattern (brief, page 6). Appellants assert that McAteer configures the microphone element rather than the boot and teaches against modifying the polar response pattern of the microphone (id.). Additionally, Appellants argue that the reference does not recognize the need to configure the boot to

Appeal No. 2000-1888
Application No. 08/885,984

by varying the sound openings separation "d" on the housing to show configuration of the boot and achieving different directional response patterns (answer, page 7). The Examiner further points out that improving the directivity pattern of McAteer's microphone would have inherently reduced the overall pickup of undesired sounds including those from sources internal to the computer (answer, page 8).

A rejection for anticipation under section 102 requires a finding that the claim at issue "reads on" a prior art reference. Atlas Powder Co. v. IRECO Inc., 190 F.3d 1342, 1346, 51 USPQ2d 1943, 1945 (Fed. Cir. 1999) (quoting Titanium Metals Corp. v. Banner, 778 F.2d 775, 781, 227 USPQ 773, 778 (Fed. Cir. 1985)). See also In re Paulsen, 30 F.3d 1475, 1479, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994). Further, establishing anticipation of a claim requires that a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. RCA

Appeal No. 2000-1888
Application No. 08/885,984

Our review of McAteer confirms that the reference relates to a directional microphone including a housing with two sound ports and a microphone element for use in a lap-top computer. McAteer discloses that one of the properties of directional microphones is their unresponsiveness to sounds coming from certain directions or nulls (col. 3, lines 34-36). McAteer further teaches that by changing the spatial separation (d) between the sound ports, the acoustic resistance of the element or the volume of the acoustic region behind the element (V) the directivity pattern of the microphone can be changed to cardioid, super cardioid or hypercardioid (col. 4, lines 10-23). These different directivity patterns are described as having different characteristics that affect the location of the nulls, power and front-to-back response ratio (col. 4, lines 23-30). Therefore, we find that, as set forth by the Examiner (answer, pages 7 & 8), any changes made to d and V are in effect changes made to the housing and result in directional responses making the microphone unresponsive to sounds coming from other directions.

Appeal No. 2000-1888
Application No. 08/885,984

also disagree with Appellants' arguments (reply brief, pages 1 & 2) that a directional microphone having maximum sensitivity in one direction "does not inherently preclude significant sensitivities to noise sources in other directions." McAteer clearly teaches that each directivity pattern has its specific characteristics including the location/direction of the nulls. We note that all the directivity patterns disclosed by McAteer have decreased responsiveness in directions around their nulls which are different from the direction that receives the user's voice. Thus, by placing the microphone assembly with its maximum sensitivity in the direction that receives the user's voice, the noise from other sources including the computer internal noise that propagates in a direction close to the direction of the nulls is inherently compensated. Therefore, the Examiner has met the burden of providing a prima facie case of anticipation. Accordingly, the rejection of claims 1, 5, 32 and 44 under 35 U.S.C. § 102 over McAteer is sustained.²

35 U.S.C. § 102 Rejection over Lundgren

Appeal No. 2000-1888
Application No. 08/885,984

hypercardioid pattern whereas Appellants' group A claims require various response patterns such as cardioid, super cardioid and bipolar (brief, pages 9 & 10). Additionally, Appellants urge that unlike the claimed configuration of the boot to compensate for internal noise, Lundgren attempts to reduce unwanted sounds coming from "all directions" outside the computer (brief, page 9).

In response, the Examiner points out that Lundgren's disclosed modification to the housing of the microphone actually achieves the desired directional response (answer, page 8). The Examiner further asserts that the resulting directional microphone is optimized for sounds from a specific direction such as from a user, which would inherently reduce the overall pickup of sounds from other directions surrounding the microphone including the internal sounds (answer, page 9).

Similar to McAteer, Lundgren relates to a directional microphone for use in a computer. Lundgren modifies the housing of a directional microphone having a cardioid response pattern to

Appeal No. 2000-1888
Application No. 08/885,984

axis undesired sounds (col. 11, lines 51-57). Therefore, Lundgren provides for a directional microphone in which the housing is "configured" to obtain a specific directivity pattern that reduces sensitivity to sounds in an off-axis direction.

In view of our findings above, we agree with the Examiner and further find that the microphone of Lundgren inherently compensates for internal noise of the computer. The directivity pattern disclosed by Lundgren has decreased responsiveness in an off-axis direction, such as bottom-to-top, which is the direction in which the internal noise generated by computer components may reach the microphone. Therefore, as pointed out by the Examiner, with the placement of the prior art microphone assembly with its non-zero response direction arranged to receive sounds from the user, internal noise in the off-axis direction of nulls is inherently compensated. Therefore, we find that the Examiner has met the burden of providing a prima facie case of anticipation. Accordingly, we sustain the rejection of claims 32, 33-36, 42-44 and 46-50 under 35 U.S.C. § 102 over Lundgren.

Appeal No. 2000-1888
Application No. 08/885,984

assert that the Examiner provides no suggestion for combining the references and merely employs hindsight (brief, page 11).

In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a prima facie case of obviousness. See In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). A prima facie case of obviousness is established by presenting evidence that the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the references before him to make the proposed combination or other modification. See In re Lintner, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

We disagree with Appellants' arguments because, as discussed above, McAteer and Lundgren both teach configuring the microphone boot for achieving a desired directional response pattern that suppresses sounds in an off-axis direction. We also observe that the internal noise of the computer, which propagates from internal sources in a direction other than the non-zero response direction of the microphone, would be inherently attenuated.

Appeal No. 2000-1888
Application No. 08/885,984

establish a prima facie case of obviousness. Accordingly, the rejection of claims 1, 2, 4-17, 23-25 and 27-31 under 35 U.S.C. § 103(a) over Lundgren and McAteer is sustained.

35 U.S.C. § 103 Rejection over Lundgren, McAteer and
Baumhauer

With respect to group B claims, Appellants argue that although Baumhauer discloses a specific polar response pattern, nothing in the reference teaches or suggests selection of a pattern to compensate for internal noise (brief, pages 7 & 8). Appellants further point out that varying the distance between the sound ports of Baumhauer in combination with McAteer and Lundgren does not teach the claimed limitation of "varying the distance between a microphone element and the front and rear surfaces of a shell of a portable computer" (brief, page 12). Appellants add that the microphone element of Baumhauer is centered with respect to the external end surfaces of the housing because the microphone element is placed between identical housing halves (brief, page 13).

Appeal No. 2000-1888
Application No. 08/885,984

element (V) to obtain various directivity patterns (answer, page 10). The Examiner further equates the varying of the volume behind the microphone element with configuring the microphone boot such that only the sounds in a desired direction are picked up (id.).

Baumhauer discloses a directional microphone that, similar to the microphone of McAteer, includes a housing with two sound ports and a microphone element which is unresponsive to sounds coming from off-axis directions known as nulls (col. 4, lines 24-26). Baumhauer further teaches that changes made to the spatial separation (d) between the sound ports, the acoustic resistance of the element or the volume of the acoustic region behind the element (V) vary the directivity pattern of the microphone from cardioid to other known patterns such as super cardioid or hypercardioid (col. 5, lines 5-17). Baumhauer further describes the different characteristics associated with each of the different directivity patterns and how they affect the location of the nulls, power and front-to-back response ratio of the

Appeal No. 2000-1888
Application No. 08/885,984

desired directional response, which is unresponsive to sounds coming from certain directions, may be obtained.

We note that Appellants' claims 18 and 37 merely require that hole sizes be large compared to the path line length of the boot. McAteer teaches the smaller path line length of the holes relative to the hole size as the short lengths of acoustic channels in the regions behind the microphone element (col. 5, lines 53-57). However, claims 3, 19-22, 26, 38-41 and 45 recite varying the volume of the region behind the microphone element by changing the distance between the element and the front and rear surfaces of a shell of a portable computer. This limitation requires a specific orientation of the directional microphone with respect to the front and rear surfaces of the computer shell. We agree with Appellants (brief, page 12) and find that the Examiner has failed to identify any teachings in the prior art that would have suggested to one of ordinary skill in the art the claimed varied distance between the element and the front and rear surfaces of the computer shell.

Appeal No. 2000-1888
Application No. 08/885,984

respect to claims 19-22, 26, 38-41 and 45. We also find that McAteer does not anticipate claim 3, which recites limitations similar to those of claim 19. Accordingly, we sustain the 35 U.S.C. § 103(a) rejection of claims 18 and 37 over Lundgren, McAteer and Baumhauer but not of claims 19-22, 26, 38-41 and 45. We also cannot sustain the 35 U.S.C. § 102(e) rejection of claim 3 over McAteer.

Appeal No. 2000-1888
Application No. 08/885,984

CONCLUSION

In view of the foregoing, the decision of the Examiner rejecting claims 1, 5, 32-36, 42-44 and 46-50 under 35 U.S.C. § 102 and rejecting claims 1, 2, 4-18, 23-25, 27-31 and 37 under 35 U.S.C. § 103 is affirmed. The decision of the Examiner rejecting claim 3 under 35 U.S.C. § 102 and rejecting claims 19-22, 26, 38-41 and 45 under 35 U.S.C. § 103 is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

KENNETH W. HAIRSTON)
Administrative Patent Judge)
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) BOARD OF PATENT
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Appeal No. 2000-1888
Application No. 08/885,984

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