

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KEITARO KOROISHI,
HIRONOBU ITOH, and TOMOYUKI YOSHINO

Appeal No. 2001-2673
Application No. 09/299,470¹

ON BRIEF

Before FLEMING, DIXON, and LEVY, Administrative Patent Judges.
LEVY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1 through 17, which are all of the claims pending in this application.

¹ Application for patent filed April 26, 1999.

BACKGROUND

Appellants' invention relates to a piezoelectric actuator and a method of compensating the orientation thereof. An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced as follows:

1. A piezoelectric actuator comprising:

a piezoelectric element;

an electrode pattern formed on the piezoelectric element; and

at least one identifying marking formed on the electrode pattern, each of the at least one identifying markings having a shape comprising multiple straight sides so misalignment during formation of the electrode pattern on the piezoelectric element whereby a portion of an identifying marking is not formed on the electrode pattern results in a linear variation in area of the identifying marking and not a variation in area of the identifying marking based on a squared value of a dimension thereof;

and wherein the at least one identifying marking is formed at a specific location of the electrode pattern for use in identifying a characteristic of the electrode pattern.

The examiner relies upon appellants' admitted prior art disclosed in figure 17 of appellants' specification.

Claims 1-17 stand rejected² under 35 U.S.C. § 102(a) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over the prior art as represented by appellants' figure 17.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejections, we make reference to the examiner's answer (Paper No. 15, mailed June 14, 2001) for the examiner's complete reasoning in support of the rejections, and to the brief (Paper No. 14, filed April 26, 2001) and reply brief (Paper No. 16, filed August 17, 2001) for the appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to appellants' specification and claims, to the applied prior art reference, and to the respective positions articulated by the appellants and the examiner.

Upon consideration of the record before us, we reverse.

² The rejection of claims -17 under 35 U.S.C. § 101 has been withdrawn by the examiner (Paper No. 13, mailed March 9, 2001).

Anticipation is a question of fact. In re King, 801 F.2d 1324, 1326, 231 USPQ 136, 138 (Fed. Cir. 1986). A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. Verdegaal Bros. Inc. v. Union Oil Co., 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The inquiry as to whether a reference anticipates a claim must focus on what subject matter is encompassed by the claim and what subject matter is described by the reference.

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, 9 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972). Furthermore, the conclusion that the claimed subject matter is prima facie obvious must be supported by evidence, as shown by some objective teaching in the prior art or by knowledge generally available to one of ordinary skill in the art that would have led that individual to modify the relevant teachings to arrive at the claimed invention. See In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

Rejections based on § 103 must rest on a factual basis with these facts being interpreted without hindsight reconstruction of the invention from the prior art. The examiner may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis for the rejection. See In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 177 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968). Our reviewing court has repeatedly cautioned against employing hindsight by using the appellants' disclosure as a blueprint to reconstruct the claimed invention from the isolated teachings of the prior art. See, e.g., Grain Processing Corp. v. American Maize-Products Co., 840 F.2d 902, 907, 5 USPQ2d 1788, 1792 (Fed. Cir. 1988).

The examiner's position (answer, page 3) is that the claims are anticipated by the acknowledged prior art as represented by appellants' figure 17. According to the examiner (id.), the acknowledged prior art teaches that the specific structure of the piezoelectric actuator is well known, and that markings are used which serve a function during assembly but which have no function in the finished actuator (id.). According to the examiner, the claimed device differs from the prior art only with respect to the shape or pattern of the printed markings, and that therefore,

the "actual functional structure claimed" is anticipated by the prior art (id.).

We find that the acknowledged prior art teaches (Fig. 17) an identifying marking "in a semicircular shape at a portion of the outer peripheral portion of the electrode" (specification, page 2). Appellants' specification identifies (page 3) a problem in the prior art, pursuant to which the position of the marking upon the piezoelectric element cannot be detected by image processing apparatus. This problem may occur if the piezoelectric element is misaligned when the marking is formed thereupon, such that an outer portion of the marking is formed outside the periphery of the element and only an inner portion of the marking is formed upon the element itself (id.). In accordance with the magnitude of such misalignment, the area of the marking formed upon the element is reduced in proportion to the radius of curvature of the semicircle (id.). As a result, the resulting area of the marking may be too small to be detected by image processing apparatus if such misalignment occurs (id.).

Appellants assert (brief, page 12) that the prior art does not disclose the form of the claimed at least one marking. Claim 1 recites each of the at least one identifying markings having "a shape comprising multiple straight sides." The specification

teaches that the claimed shape of the marking, as illustrated in figure 1, solves the problem in the prior art because "a rapid deterioration in the identifying function is prevented" (page 20). Specifically, the specification teaches (page 5):

When the marking having the shape comprising multiple sides rests on the outer periphery of the piezoelectric element, the area is reduced in accordance with an internal angle of the shape comprising multiple sides and accordingly, a rate of reducing the area is smaller than that of reducing the marking in the semicircular shape.

We find that the admitted prior art, which teaches markings having a semicircular shape (specification, Fig. 17), fails to disclose the distinct structure of the claimed actuator, which recites markings having a shape comprising multiple straight sides. We observe that the function of the marking is to provide a reference point by which to determine and control the proper orientation of the element during the remainder of the manufacturing process (specification, page 1), and therefore find that the claimed marking is not merely printed matter as advanced by the examiner. Accordingly, we find that the examiner has failed to establish a prima facie case of anticipation with respect to independent claim 1 and, consequently, has also failed to establish a prima facie case of anticipation with respect to claims 2 and 6 through 9 which depend therefrom.

With respect to the alternative rejection of claim 1 under 35 U.S.C. § 103(a), the examiner's position (answer, pages 3-4), is that it would have been obvious to one of ordinary skill in the art to provide the prior art piezoelectric actuator with any suitable markings, regardless of shape, based upon the explicit teaching of the prior art to provide markings in the first place.

Appellants argue (brief, page 23) that the examiner has failed to establish a prima facie case of obviousness. We agree with appellants' contention that "[m]ere speculation or conclusory allegations are simply inadequate" to meet the examiner's burden of providing "an evidentiary basis establishing that each and every limitation of a rejected claim would have appeared obvious to the ordinarily skilled practitioner" (brief, page 22).

We incorporate by reference our finding, supra, that the acknowledged prior art, which teaches markings having a semicircular shape, fails to disclose the distinct structure of the claimed actuator, which recites markings having a shape comprising multiple straight sides. We find the examiner's argument, that "it would have been obvious to one of ordinary skill in the art that indicia or markings could be any suitable shape," is not a substitute for evidence of motivation to modify

the prior art to provide a piezoelectric actuator having at least one identifying marking with multiple straight sides.

Accordingly, we find that the examiner has not established a prima facie case of obviousness with respect to independent claim 1 and, consequently, has also failed to establish a prima facie case of obviousness with respect to claims 2 and 6 through 9 which depend therefrom.

From all of the above, we reverse the rejection of claims 1, 2 and 6 through 9 under 35 U.S.C. § 102(a) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over the prior art.

We turn next to independent claim 3. Claim 3 recites a piezoelectric actuator comprising, inter alia, an "identifying marking being formed proximate an outer periphery of the electrode pattern and between the contiguous electrodes in the electrode pattern" (emphasis added). We note that the prior art, as represented by appellants' figure 17, teaches "a marking 104 in a semicircular shape at a portion of the outer peripheral portion of the electrode 102a in the fan-like shape of the electrode pattern 102" (specification, page 2) (emphasis added). As the prior art only teaches (id.) an identifying marking formed on the outer peripheral portion of a single electrode, we find

that the prior art fails to disclose the claimed limitation that an identifying marking be formed between contiguous electrodes in the electrode pattern. Accordingly, we find that the examiner has failed to establish a prima facie case of anticipation with respect to claim 3.

With respect to the alternative rejection of claim 3 under 35 U.S.C. § 103(a), the examiner's position (answer, page 3), is that it would have been obvious to one of ordinary skill in the art to provide the prior art piezoelectric actuator with any suitable markings based upon the explicit teaching of the prior art to provide markings in the first place.

Appellants argue (brief, page 23) that the examiner has failed to establish a prima facie case of obviousness. We find that the prior art fails to disclose the claimed limitation that an identifying marking be formed between contiguous electrodes in the electrode pattern, rather than on a portion of a single electrode. The examiner's statement of obviousness does not provide a sufficient factual basis for a showing of incentive or motivation to provide prior art piezoelectric actuators with identifying markings formed between contiguous electrodes. Accordingly, we find that the examiner has not established a prima facie case of obviousness with respect to claim 3.

From all of the above, we reverse the rejection of claim 3 under 35 U.S.C. § 102(a) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over the prior art.

We turn next to independent claim 4. The examiner's position (answer, page 3) is that the prior art anticipates the structure of the claimed piezoelectric actuator. Appellants argue that "the relationship between the identifying markings recited in these claims and the underlying electrode pattern is distinct from that shown in the admitted prior art" (brief, page 17). Claim 4 recites "an integer number m identifying markings formed in the electrode pattern. . . , the m identifying markings being formed at equal intervals in accordance with the relation $m=n/(2xp)$," where n is the integer number of portions into which the piezoelectric element is divided and p is the integer number of divided portions polarized in each direction. Although the term 'integer' generally includes the number '1', we read the claim language of " m identifying markings" as requiring the value of m to be at least 2. We note that the prior art (specification, Fig. 17) teaches forming a single identifying marking on a piezoelectric element. Consequently, we find that the prior art fails to disclose the claimed multiple identifying

markings and their relationship to the electrode pattern. Accordingly, we find that the examiner has failed to establish a prima facie case of anticipation with respect to claim 4.

With respect to the alternative rejection of independent claim 4 under 35 U.S.C. § 103(a), the examiner's position (answer, page 3), is that it would have been obvious to one of ordinary skill in the art to provide the prior art piezoelectric actuator with any suitable markings based upon the explicit teaching of the prior art to provide markings in the first place.

Appellants argue (brief, page 20) that the prior art does not suggest the modifications necessary to achieve the structure claimed in claim 4 and that the examiner has not provided a rationale as to why such modifications would be obvious. We incorporate by reference our finding, supra, that the prior art fails to disclose the claimed multiple identifying markings and their relationship to the electrode pattern. We also observe that there is no suggestion in the acknowledged prior art to replicate the single identifying marking which is taught therein. We note that the examiner's statement of obviousness is not a substitute for evidence of motivation to modify the prior art to provide a piezoelectric actuator having the claimed multiple identifying markings and their claimed relationship with the

electrode pattern. Accordingly, we find that the examiner has not established a prima facie case of obviousness with respect to claim 4.

From all of the above, we reverse the rejection of claim 4 under 35 U.S.C. § 102(a) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over the prior art.

In accordance with our reversal of the rejections of claims 1 through 4, we also reverse the rejection of dependent claim 5 under 35 U.S.C. § 102(a) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over the prior art, as claim 5 incorporates by reference the piezoelectric actuator according to any one of claims 1 to 4.

We turn next to independent claim 10. Claim 10 recites a piezoelectric actuator comprising, inter alia:

. . . at least one identifying marking formed on the electrode pattern, each of the at least one identifying markings having a shape comprising multiple sides and being formed at a specific location of the electrode pattern for use in identifying a characteristic of the electrode pattern. . . .

While the examiner's position is that the acknowledged prior art anticipates claim 10, appellants argue that the claimed piezoelectric actuator differs in the form of the identifying

marking thereupon (brief, page 12). We incorporate by reference our finding, supra, that the prior art fails to disclose the form of the marking of claim 1, in finding, for the same reasons, that the prior art fails to disclose the form of the marking of claim 10. We therefore find that the prior art discloses a semicircular marking while the claimed marking has a shape comprising multiple sides. Accordingly, we find that the examiner has failed to establish a prima facie case of anticipation with respect to independent claim 10 and, consequently, has also failed to establish a prima facie case of anticipation with respect to claims 11 through 17 which depend therefrom with further limitations.

With respect to the alternative rejection of claim 10 under 35 U.S.C. § 103(a), the examiner's position (answer, pages 3-4) is that it would have been obvious to one of ordinary skill in the art to provide the prior art piezoelectric actuator with any suitable markings, regardless of shape, based upon the explicit teaching of the prior art to provide such markings in the first place.

Appellants argue (brief, page 23) that the examiner has failed to establish a prima facie case of obviousness.

Appellants further argue (brief, page 11) that claim 10 recites a

structure for an identifying marking such that misalignment during formation of the marking on the electrode pattern does not cause the problems associated with the prior art.

We incorporate by reference our finding, supra, that the prior art fails to disclose the form of the identifying marking recited in claim 10. Namely, we find that prior art discloses a semicircular marking while the claimed marking has a shape comprising multiple sides. We find that the examiner's stated ground for rejection (answer, page 4), that "it would have been obvious to one of ordinary skill in the art indicia or markings could be any suitable shape," is not a substitute for evidence of motivation to modify the semicircular marking of the prior art to arrive at appellants' claimed invention. Accordingly, we find that the examiner has not established a prima facie case of obviousness with respect to independent claim 10 and, consequently, has also failed to establish a prima facie case of obviousness with respect to claims 11 through 17 which depend therefrom.

From all of the above, we reverse the rejection of claims 10 and 11 through 17 under 35 U.S.C. § 102(a) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over the prior art.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1 through 17 under 35 U.S.C. § 102(a) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over the prior art, as represented by appellants' figure 17, is reversed.

REVERSED

MICHAEL R. FLEMING)	
Administrative Patent Judge)	
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