

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte CHRISTIAN KLEIN,
HANS-PETER JOSEL,
RUPERT HERRMANN,
JOSEF MAIER,
HARALD ERTL,
HELMUT OBERPRILLER,
REINHOLD HILPERT,
FLORIAN BINDER, and
JOSEF RITTER

Appeal No. 2001-1650
Application No. 08/898,085

ON BRIEF

Before WILLIAM F. SMITH, SCHEINER, and MILLS, Administrative Patent Judges.

SCHEINER, Administrative Patent Judge.

DECISION ON APPEAL

This appeal was taken from the examiner's decision rejecting claims 19-22, 28 and 29, which are all of the pending claims.

Representative Claim

Claim 19 is representative of the subject matter on appeal, and reads as follows:

19. A device for obtaining an analyte contained in a gas phase, comprising

a) a gas-and liquid permeable carrier matrix containing a first binding partner of an analyte in elutable form,

b) a capture matrix which binds a complex consisting of said analyte and said first binding partner or a noncomplexed first binding partner, wherein an analyte analogue or antibody specific for the complex of said analyte and said first binding partner is immobilized on said capture matrix, and

c) a means for drawing a sample gas across said gas-and liquid-permeable carrier matrix containing a first binding partner of an analyte in elutable form wherein said means does not draw said gas through said capture matrix.

The References

In rejecting the appealed claims under 35 U.S.C. § 103, the examiner relies on the following prior art references:

Greenquist	4,806,312	Feb. 21, 1989
Clark	5,219,528	Jun. 15, 1993

Ijsselmuiden et al. (Ijsselmuiden), "Optimizing the solid-phase immunofiltration assay[,] A rapid alternative to immunoassays," Journal of Immunological Methods, Vol. 119, pp. 35-43 (1989)

The Rejections

The appealed claims stand rejected as follows:

(1) Claims 19-22, 28 and 29 under 35 U.S.C. § 103 as unpatentable over Greenquist in view of Ijsselmuiden.

(2) Claims 20 and 29 under 35 U.S.C. § 103 as unpatentable over Greenquist in view of Clark.

In each of the obviousness rejections, the examiner initially discusses Greenquist's disclosure of a multi-zone or multi-layer test device for the determination of analyte from a liquid test medium (Examiner's Answer, pages 3 and 5). The examiner then states that Greenquist differs from the claims "in failing to teach a vacuum pump to draw a sample across the carrier matrix" (Examiner's Answer, page 4; see also page 5). The examiner then points out that Ijsselmuiden discloses an immunoassay method involving filtration of antibody and rinsing solutions through nitrocellulose filters pre-coated with antigen, and that the filtration was achieved by applying vacuum to the lower part of the device (Examiner's Answer, page 4). The examiner then provides the following rationale (Examiner's Answer, page 4) for combining Greenquist and Ijsselmuiden:

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the vacuum pump of Ijsselmuiden in the device of Greenquist because Ijsselmuiden teaches that the use of the vacuum pump provides the additional advantage of a rapid immunoassay and the possibility of testing multiple antigens in a single run without affecting the time required for the execution of the assay.

In the second rejection, relying on Clark, instead of Ijsselmuiden, to supplement Greenquist's failure to disclose a means for drawing a sample gas across the gas-and liquid-permeable carrier matrix, the examiner reasons (Examiner's Answer, page 6) that Clark should be combined with Greenquist as follows:

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the vacuum means of Clark in the device of Greenquist because Clark teaches that the use of a vacuum to draw samples through a membrane provides the advantage of rapidity over prior art procedures (Clark, column 1, lines 64-65).

While neither Greenquist nor Clark teaches a gas sample being drawn through the carrier matrix, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to use the device taught by Greenquist as modified by Clark to detect analyte in a gaseous sample because the carrier matrix of Greenquist is made of the same material as the carrier matrix of the instant invention, therefore, they are functionally equivalent and thus would be capable of detecting an analyte in both a gaseous and liquid sample.

Discussion

In proceedings before the Patent and Trademark Office (PTO), the examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art. In re Fritch, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992)(footnote omitted). The examiner can satisfy this burden “only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references.” Id. As set forth in In re Kotzab, 217 F.3d 1365, 1369-70, 55 USPQ2d 1313, 1316 (Fed. Cir. 2000):

A critical step in analyzing the patentability of claims pursuant to section 103(a) is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. ... Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher. ...

Most if not all inventions arise from a combination of old elements. ... Thus, every element of a claimed invention may often be found in the prior art. ... However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. ... Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant. (Citations omitted.)

The examiner's prima facie case of obviousness must be supported by substantial evidence. See In re Lee, 277 F.3d 1338, 1342, 61 USPQ2d 1430, 1432 (Fed. Cir. 2002).

Because we do not find the examiner's holding of prima facie obviousness to be supported by substantial evidence, we reverse both of the rejections under § 103.

As pointed out above, the examiner's holding of obviousness over Greenquist in view of Ijsselmuiden is based on the fact that Ijsselmuiden teaches that a vacuum pump allows for a more rapid immunoassay and that multiple antigens can be tested in a single run without affecting the time required for performing the assay (Examiner's Answer, page 4). Similarly, the examiner combines Clark with Greenquist because Clark teaches that use of a vacuum pump improves the speed of the assay process (Examiner's Answer, page 6).

However, there is nothing in Greenquist, Ijsselmuiden or Clark, to suggest that speed would have been desirable in Greenquist's assay methods. Rather, Greenquist seems to suggest the opposite. Greenquist's device uses simple diffusion to allow the sample to pass through the testing layers at a controlled rate, rather than using a device to accelerate the sample's passage through the testing layer. Moreover, in a preferred embodiment (column 14, lines 43-51), Greenquist emphasizes that

It is also sometimes preferred to provide a timing zone or layer which controls the rate of diffusion of the various reagents incorporated into the multilayer test device through the various layers thereof. Such timing zones or layers are incorporated into the test device in order to provide controlled incubation times and sequential reactions or to facilitate manufacture of the device by preventing premature interaction of the reagents in the device. (emphasis added.)

Thus, rather than being concerned with speed, Greenquist is concerned with ensuring that the sample travels through the disclosed device at a controlled rate of diffusion. One of ordinary skill practicing Greenquist would therefore not have looked to references such as Ijsselmuiden or Clark, which are directed to methods of performing assays wherein speed is desirable. Because Greenquist focuses on the use of diffusion as the method of sample travel through the layers of his device, we find nothing in the reference to indicate that the speed advantage of a suction means on an immunoassay device, argued by the examiner as being demonstrated by Ijsselmuiden and Clark, would have been viewed by one of ordinary skill as an advantageous or desirable modification of the device disclosed by Greenquist.

We note, as argued by the examiner (Examiner's Answer, page 8), that Ijsselmuiden discloses that reagent binding can be optimized by using a pump to vary the rate of filtration (Ijsselmuiden, page 38). Again, however, we find no

evidence in Greenquist of any shortcoming of the simple diffusion techniques disclosed therein which would have suggested applying Ijsselmuiden's suction means to Greenquist's device. Similarly, we find nothing in the disclosures of the single-filter techniques of Ijsselmuiden and Clark which would have suggested the desirability of adding a suction means to the multi-layered device of Greenquist. As stated in Fritch, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783-1784 (footnote omitted), "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." In this case we simply do not find substantial evidence of a motivation, suggestion or teaching for combining the cited references so as to arrive at claimed invention.

The examiner argues that the claims are drawn to a device, not a method, and that appellants' arguments regarding the requirement of a gas sample, as opposed to the liquid sample of the prior art, do not establish that the device as claimed would have been non-obvious because the cited references provide motivation for the claimed assembly of elements (Examiner's Answer, pages 10-12). The examiner also argues that a recitation of an intended use must result in structural difference between the claimed invention and the prior art in order to distinguish the claims from the prior art (Examiner's Answer, page 11).

However, we construe the limitation in claim 19, "said means does not draw said gas through said capture matrix" to require the device to be configured

such that, when in operation, the gas-drawing means would draw gas across the capture matrix, rather than through it. In our view, the references relied on do not provide any motivation, teaching or suggestion for such a configuration. Rather, Greenquist discloses, for example at column 6, lines 18-25, that the sample should be drawn into the detection layer:

Where a first and second reagent layer are provided, the liquid test medium is similarly permitted to diffuse and permeate into and through the first reagent layer whereby the labeled reagent incorporated therein is solubilized and the liquid test medium and the labeled reagent further diffuse and permeate into and within the second reagent layer and into and within the detection layer.
(Emphasis added.)

Thus, because Greenquist requires the sample to be drawn into the detection layer, which corresponds to claim 19's "capture matrix," one of ordinary skill in the art would not have been motivated to have modified Greenquist's device with a gas-drawing means which "does not draw said gas through said capture matrix" as required in claim 19. That is, even if the prior art had provided motivation for adding the vacuum pump of Ijsselmuiden or Clark to Greenquist's device, such combination would not have met the configuration of the device required by claim 19.

In sum, because the prior art applied by the examiner fails to provide a motivation, teaching or suggestion for configuring the device as claimed, we find that that examiner has not established a prima facie case of obviousness within the meaning of 35 U.S.C. § 103. We therefore reverse both of the obviousness rejections.

REVERSED

WILLIAM F. SMITH)	
Administrative Patent Judge)	
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