

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today
(1) was not written for publication in a law journal and
(2) is not binding precedent of the Board.

Paper No. 56

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte THOMAS B. GREEN
and ROBERT G. WESTENDORF

Appeal No. 1997-1669
Application No. 08/185,649

ON BRIEF

Before CALVERT, FRANKFORT, and NASE, Administrative Patent Judges.

FRANKFORT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 13, 14, 16-19, 21, 30-36 and 42-46, which are all of the claims pending in the application. Claims 1-12, 15, 20, 22-29 and 37-41 have been canceled.

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Appellants' invention relates to a transport device (2) for conveying sample vials (20) including a platen (4) having a plurality of chambers (16) rotatable around a central axis, the chambers each including reduced diameters at the bottoms thereof for retaining one of the sample vials (20) and providing access to retained sample vials from below, a platen gear (52) and a drive motor (66) with a drive gear (68) cooperating with the platen gear (52) for rotating the platen (4). The transport device further includes a first vial transport (86) having a first displaceable rod (88) moved to enter the chamber (16) from below through an opening (100) to engage and convey the vial (20) into the chamber (16) from a point above the chamber, and the reverse. The sample vials (20) have caps with septums and contain sample material with a headspace that includes volatile gases for analysis by gas chromatography. Appellants provide the transport device (2) with an electrically powered heater (76) to heat the platen (4) and the sample vials (20), a vial mixing device (102) including a second displaceable rod (104), a motor (109) to move the rod (104) into engagement with a sample vial (20) and a solenoid (110) that pulses the rod to mix the contents to

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increase the rate of transport of gaseous components to the headspace and a needle (114) for extracting the gaseous component from the headspace through the septum and means for moving the vial into engagement with the needle (114) including a third rod (120) and a motor (126). A representative copy of independent claims 13 and 42, reproduced from appellants' brief, is attached to this decision.

The prior art references of record relied upon by the examiner as evidence of obviousness are:

U.S. Patents

Natelson	3,324,628	Jun. 13, 1967
Jentzsch et al. (Jentzsch)	3,545,279	Dec. 8, 1970
Smith	3,581,574	Jun. 1, 1971
Lorch et al. (Lorch)	3,832,140	Aug. 27, 1974
Chlosta et al. (Chlosta '733)	4,476,733	Oct. 16, 1984
Chlosta et al. (Chlosta '436)	4,554,436	Nov. 19, 1985
Stone	4,713,974	Dec. 22, 1987

Foreign Patent

Fujitsuka	(Japan)	58-80555	May 14, 1983
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Articles

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R. Otson (Otson), "Automatic Liquid Injector for Headspace Gas Chromatography," Analytical Chemistry, Vol. 53, No. 6, pages 929-931 (1981).

Yamano et al. (Yamano)(Japan), "A Simple Determination Method of Bromide Ion in Plasma of Methyl Bromide Workers by Head Space Gas Chromatography," J. Ind. Health, Vol. 29, pp. 196-201 (1987).

Rejections

Claims 42 and 44-46 stand rejected under 35 U.S.C. § 103 as being unpatentable over Stone in view of Otson, Chlosta '733, Smith and Lorch.

Claims 13, 14, 17-19, 30-36 and 43 stand rejected under 35 U.S.C. § 103 as being unpatentable over Stone in view of Otson, Chlosta '733, Smith and Lorch as applied to claim 42 above, and further in view of Fujitsuka and Natelson or Yamano.

Claim 16 stands rejected under 35 U.S.C. § 103 as being unpatentable over Stone in view of Otson, Chlosta '733, Smith,

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Lorch, Fujitsuka and Natelson or Yamano as applied to claim 14 above, and further in view of Jentzsch.

Claim 21 stands rejected under 35 U.S.C. § 103 as being unpatentable over Stone in view of Otson, Chlosta '733, Smith, Lorch, Fujitsuka and Natelson or Yamano as applied to claim 13 above, and further in view of Chlosta '436.

Rather than attempt to reiterate the examiner's full commentary with regard to the above noted rejections and the conflicting viewpoints advanced by the examiner and appellants regarding the rejections, we make reference to the final rejection (Paper No. 46, mailed February 15, 1996) and the examiner's answer (Paper No. 51, mailed December 2, 1996) for the reasoning in support of the rejections, and to appellants' brief (Paper No. 50, received November 4, 1996) and reply brief (Paper No. 52, received February 10, 1997) for the arguments thereagainst.

OPINION

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

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); In re Oetiker, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992)), which is established when the teachings of the prior art itself would appear to have suggested the claimed subject matter to one of ordinary skill in the art (see In re Bell, 991 F.2d 781, 783, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993)). 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 combine the relevant teachings of the references to arrive

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at the claimed invention. See In re Fine, 837 F.2d 1071, 1074,
5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

First we turn to the examiner's rejection of claims 42
and 44-46 under 35 U.S.C. § 103 as being unpatentable over
Stone in view of Otson, Chlosta '733, Smith and Lorch.

The examiner relies on Stone (answer, pages 4-5) to
disclose a liquid sampling device comprising a rotatable
sample tray (50, 60) having chambers with shoulders for
retaining vials therein and a stationary needle (260, 270)
disposed above the tray (50, 60). It is further urged that
Stone provides a vertically displaceable rod (200) which is
brought into engagement with sample vial (77) to push the
vial into engagement with the needle (260). The examiner
notes that Stone lacks an automated vial transport that
conveys a vial into a chamber from a point above the chamber,
a gear drive system and means to heat the sample tray. The
examiner relies on Otson to teach the use of a liquid
autosampler for sampling headspace gas for gas chromatography.
Chlosta '733 is relied upon by the examiner to teach a device

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for feeding sample vials into a gas chromatograph including a rotatable heatable sample vessel store or block (30), a lifting member (52) comprising a vertically displaceable rod to transport vials into the block (30) from below the block (30) and out of the block (30) and a second device for lifting the block (30) and the sample vials so the sample vials engage a stationary needle (34). Smith is relied upon to teach a gear means for rotating a platen. The examiner relies upon Lorch to teach displaceable rods (46, 48) for use on an analysis device (3).

Based on the combined teachings of Stone, Otson, Chlosta '733, Smith and Lorch, the examiner concluded that it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a heater into the sample tray of Stone as taught by Chlosta '733 and to use the device to sample headspace gases as taught by Otson because it is well known in the art that heating the samples prior to sampling decreases the sampling time significantly. The examiner further urged that it would have been obvious to one of ordinary skill in the art to use a lifting means such as

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the lifting member of Lorch and incorporate a sample holding area such as taught by Chlosta '733 or Lorch into the Stone device to allow sampling of the vials to occur at the same time as loading of the vials.

Implicit in this rejection is the examiner's view that the above noted modifications of Stone would have resulted in a transport device which corresponds to the subject matter set forth in appellants' claims 42 and 44-46.

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. See In re Young, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed Cir. 1991) and In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). In this case, we are in agreement with appellants (brief, pages 8-13) that the combined teachings of Stone, Otson, Chlosta '733, Smith and Lorch simply fail to disclose or provide any suggestion for heating the racks (50) while on the carousel of Stone or heating the carousel that carries the racks; nor any suggestion of using a rod for inserting or removing the vials

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from chambers while the racks are on the carousel of Stone. In considering the disparate teachings of the various applied references, we are of the opinion that the examiner has clearly employed improper hindsight to come to the conclusion that one of ordinary skill in the art would have combined the teachings of Stone, Otson, Chlosta '733, Smith and Lorch to create the particular transport device defined in claims 42 and 44-46 on appeal.

Moreover, after reviewing the examiner's proposed combination of Stone, Otson, Chlosta '733, Smith and Lorch applied to claims 42 and 44-46, we note that this combination fails to teach or suggest a second displaceable rod to urge the vial upward along a chamber of the platen at the second location to bring the septum of the vial in puncturing contact with a needle "while maintaining the vial in heat-conductive relation with the platen," as set forth in appellants' independent claim 42. The examiner relies on Stone for a teaching of a displaceable rod (200) to urge the vial (77) upward and to bring the septum (78) of the vial (77) in puncturing contact with a needle (260). However, as shown in

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Figure 4 of Stone, when the vial (77) is in puncturing contact with the needle (260), the vial is not in heat-conductive relation with the platen, but is clearly entirely displaced from the chamber of the platen.

In light of the foregoing we cannot sustain the examiner's rejection of claim 42, and claims 44-46 which depend therefrom, under 35 U.S.C. § 103 as being unpatentable over Stone in view of Otson, Chlosta '733, Smith and Lorch.

Next we turn to the examiner's rejection of claims 13, 14, 17-19, 30-36 and 43 under 35 U.S.C. § 103 as being unpatentable over Stone in view of Otson, Chlosta '733, Smith and Lorch as applied to claim 42 above, and further in view of Fujitsuka and Natelson or Yamano. The examiner initially relies (answer, pages 7-8) on the combination of Stone, Otson, Chlosta '733, Smith and Lorch as applied to claim 42 as the basis of the instant rejection. The examiner notes that Stone does not teach agitating the vial while in the sample tray. The examiner relies on Fujitsuka and Natelson or Yamano to teach apparatus associated with liquid and gas chromatographs

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that agitate and heat the sample vials during preparation. The examiner concluded that it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate an agitation step during heating as taught by Natelson or Yamano, using the motion of Fujitsuka, into the Stone device to facilitate thorough mixing of the sample.

As set forth above, we are in agreement with appellants (brief, pages 8-13) that, absent impermissible hindsight, the combined teachings of Stone, Otson, Chlosta '733, Smith and Lorch simply fail to disclose or provide any suggestion to heat the racks while on the carousel of Stone or of heating the carousel that carries the racks; nor any suggestion of using a rod for inserting or removing the vials from chambers while the racks are on the carousel of Stone. The addition of Fujitsuka, Natelson or Yamano to teach agitation devices to agitate sample vials and methods that include agitating and heating samples does not provide support or a suggestion for heating the racks while on the carousel of Stone or heating the carousel that carries the racks; nor any suggestion of using a rod for inserting or removing the vials from chambers

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while the racks are on the carousel of Stone. We believe that the examiner has used improper hindsight to come to the conclusion that one of ordinary skill in the art would have combined the disparate teachings of Stone, Otson, Chlosta '733, Smith, Lorch, Fujitsuka, Natelson and/or Yamano to create the transport device of claims 13, 14, 17-19, 30-36 and 43 on appeal.

In light of the foregoing, we cannot sustain the rejection of independent claims 13, 30 and 42 and claims 14, 17-19, 31-36 and 43 which depend therefrom under 35 U.S.C. § 103 as being unpatentable over Stone in view of Otson, Chlosta '733, Smith, Lorch, Fujitsuka, Natelson or Yamano.

Now we look to the examiner's rejection of claim 16 under 35 U.S.C. § 103 as being unpatentable over Stone in view of Otson, Chlosta '733, Smith, Lorch, Fujitsuka and Natelson or Yamano as applied to claim 14 above, and further in view of Jentzsch. The examiner relies (answer, page 8) on the combination of Stone, Otson, Chlosta '733, Smith, Lorch, Fujitsuka and Natelson or Yamano as set forth above as the

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initial basis of the instant rejection. The examiner notes that Stone does not teach a spring loaded wiper plate associated with the needle. Jentzsch is relied on by the examiner to teach such a spring loaded wiper plate in a headspace gas analysis chromatograph. The examiner concluded that it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the spring loaded housing of Jentzsch into the Stone device for its known benefits of covering the needle during periods that a sample is not being taken and pushing the needle out of the sample vial after removal of the sample.

As set forth above, we are in agreement with appellants (brief, pages 8-13) that the combined teachings of Stone, Otson, Chlosta '733, Smith, Lorch, Fujitsuka and Natelson or Yamano simply fail to disclose or suggest any suggestion to heat the racks while on the carousel of Stone or heating the carousel that carries the racks; nor any suggestion of using a rod for inserting or removing the vials from chambers while the racks are on the carousel of Stone absent the use of appellants' own disclosure in the instant application. The

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addition of Jentzsch to teach a spring loaded wiper plate does not overcome or provide for the deficiencies we have noted above regarding the proposed combination of Stone, Otson, Chlosta '733, Smith, Lorch, Fujitsuka, Natelson or Yamano and Jentzsch to thereby result in the transport device of claim 16 on appeal.

In light of the foregoing, we cannot sustain the examiner's rejection of claim 16 under 35 U.S.C. § 103 as being unpatentable over Stone in view of Otson, Chlosta '733, Smith, Lorch, Fujitsuka, Natelson or Yamano and Jentzsch.

The last of the examiner's rejections for our review is that of claim 21 under 35 U.S.C. § 103 as being unpatentable over Stone in view of Otson, Chlosta '733, Smith, Lorch, Fujitsuka and Natelson or Yamano as applied to claim 13 above, and further in view of Chlosta '436. The examiner relies (answer, page 9) on the combination of Stone, Otson, Chlosta '733, Smith, Lorch, Fujitsuka and Natelson or Yamano as set forth above as the initial basis of the instant rejection. The examiner notes that Stone does not teach a temperature

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measuring probe on the platen. The examiner relies on Chlosta '436 to teach a heated platen for feeding sample vials for gas chromatography analysis including a temperature regulator to control the temperature in the heated platen. The examiner concluded that it would have been obvious to one of ordinary skill in the art to provide the Stone platen with a temperature regulator because it would have allowed the temperature to be regulated and controlled during sample processing.

Upon review of Stone, we initially note that Stone does not disclose a heater or a temperature regulator. As set forth above, we are in agreement with appellants (brief, pages 8-13) that the combined teachings of Stone, Otson, Chlosta '733, Smith, Lorch, Fujitsuka and Natelson or Yamano simply fail to disclose or suggest any suggestion to heat the racks while on the carousel of Stone or heating the carousel that carries the racks; nor any suggestion of using a rod for inserting or removing the vials from chambers while the racks are on the carousel of Stone without relying on appellants' own teachings in the instant application. The addition of

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Chlosta '436 to teach a temperature measuring probe on the platen does not provide support to suggest heating the racks while on the carousel of Stone or heating the carousel that carries the racks; nor any suggestion of using a rod for inserting or removing the vials from chambers while the racks are on the carousel of Stone. We again believe that the examiner has used improper hindsight to come to the conclusion that one of ordinary skill in the art would have combined the teachings of Stone, Otson, Chlosta '733, Smith, Lorch, Fujitsuka and Natelson or Yamano and Chlosta '436 to create the transport device of claim 21 on appeal.

In light of the foregoing, we cannot sustain the rejection of claim 21 under 35 U.S.C. § 103 as being unpatentable over Stone in view of Otson, Chlosta '733, Smith, Lorch, Fujitsuka, Natelson or Yamano and Chlosta '436.

OTHER ISSUES

The examiner and appellants should review the disclosure of Chlosta '733 and determine whether this reference combined with the disclosure of Fujitsuka and Natelson or other relevant prior art would render obvious claim 30 under 35

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U.S.C. § 103. The following is a list of some relevant teachings of Chlosta '733, Fujitsuka and Natelson that the examiner should consider.

(1) Chlosta '733 discloses a transport device for conveying sample vials (36) to a sampling site for withdrawing material from a headspace of the vials for analysis by gas chromatography, comprising a heated sample vessel store or platen (46) having a plurality of chambers (48) each having an open end (the bottom end), a needle (34) for extracting material from the headspace of the vials, a displaceable rod (52) and a displaceable rod drive (146) for inserting and removing selected vials (36) through the open ends into and from the platen chambers (48) and an insertion device that moves the whole platen upwards to insert the needle (34) into a vial for extracting the material from the headspace (Fig. 1).

(2) Natelson teaches a sample preparation apparatus (Figure 1) including an electrically heated and regulated block (12) that prepares a sample vial (17) for a gas chromatograph by heating and agitating said vial (17).

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(3) Fujitsuka teaches a transport device for conveying sample vials (7) to a sampling site for withdrawing material from the vial that includes mixing the vial (7) with a drive member (16) operable to move the vial from a resting position and cause agitation of the vial contents (11) by reciprocally pulsing the vial (7) while the vial is retained in a chamber of the platen (1).

In reviewing the above facts, the examiner should determine whether the subject matter recited in claim 30 as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which this subject matter pertains over the combination of Chlosta '733, Natelson and Fujitsuka.

SUMMARY

In summary, the decision of the examiner to reject claims 13, 14, 16-19, 21, 30-36, and 42-46 under 35 U.S.C. § 103 is

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reversed. We urge the examiner to consider a rejection of claim 30 under 35 U.S.C. § 103 as being unpatentable over Chlosta '733 in view of Natelson, and Fujitsuka.

REVERSED

	Ian A. Calvert)	
	Administrative Patent Judge)	
)	
)	
)	
	Charles E. Frankfort)	BOARD OF
PATENT	Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
)	
)	
	Jeffrey V. Nase)	
	Administrative Patent Judge)	

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APPENDIX

13. A transport device for conveying sample vials having caps with a septum therein to a sampling site for withdrawing material from the headspace of said vials for analysis by gas chromatography, comprising:

a platen having a plurality of chambers rotatable around a central axis, said chambers with reduced diameters at the bottoms thereof for retaining one of said sample vials within at least one of said chambers above said reduced diameter and providing access to retained sample vials from below, said platen secured against axial movement during the entire operation of conveying sample vials to the sampling site;

an electrically powered heater located within said platen;

at least one temperature measuring probe located within said platen for measuring the temperature of said platen;

a platen gear connected to said platen and rotatable about the same axis as said platen;

a drive motor having a drive gear connected thereto, said drive gear cooperating with said platen gear;

a first vial transport having a first displaceable rod including a first rod drive on the transport device operable to move the first displaceable rod to enter said chamber from below to engage and convey said vial into said chamber from a point above said chamber, and the reverse;

a vial mixing device having a second displaceable rod and a second displaceable rod drive on the transport device operable to move the second displaceable rod to enter said chamber from below to contact said vial, and to mix the contents by pulsation of said rod to increase the rate of transport of gaseous components from the liquid in said sample vial to said headspace, and the second displaceable rod drive

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pulsing said second displaceable rod after contacting the vial to move the vial and mix the contents;

a needle for extracting material from said headspace through said septum; and

mating means for causing said needle to puncture said septum of said vial.

42. A transport device for conveying sample vials having caps with a septum therein to a sampling site for withdrawing material from the headspace of the vials for analysis by gas chromatography, comprising:

a platen rotatable about an axis and having a plurality of chambers, each chamber having a shoulder at the bottom thereof for retaining one of the sample vials, each chamber further having an opening for providing access to the sample vial from below;

heating means for heating the platen;

drive means for rotating the platen about the axis;

a first displaceable rod and a rod drive to drive and displace the first displaceable rod axially to enter each of the chambers from below to engage and lower the vial into a chamber at a first location;

a needle positioned above the platen at a second location; and

a second displaceable rod, a drive for the second displaceable rod to drive the rod to engage a vial and to urge the engaged vial upward along a chamber at the second location to bring the septum of the vial in puncturing contact with the needle while maintaining the vial in heat-conductive relation with the platen.