

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES  
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Ex parte YASUO KAZUMA  
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Appeal No. 98-3013  
Application No. 08/556,211<sup>1</sup>  
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HEARD: January 11, 1999  
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Before SOFOCLEOUS, KIMLIN and JOHN D. SMITH, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

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<sup>1</sup> Application for patent filed November 9, 1995 for reissue of U.S. Patent No. 5,259,997, issued November 9, 1993, based on Application 08/026,124, filed March 3, 1993. According to appellant, this application is a division of Application No. 07/774,832, filed October 11, 1991, now abandoned.

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This is an appeal from the final rejection of claims 1-16, all the claims in the present application. Claim 1 is illustrative:

1. In an apparatus for the manufacture of carbonated water comprising

(1) A carbonated water storage container having a bottom wall,

(2) a perforated bowl connected to an upper portion of said storage container, said perforated bowl having side walls and a bottom wall and outlet ports in the side and bottom walls,

(3) a water supply line connected to said storage container at an upper portion thereof and arranged to spray water into an inner portion of said perforated bowl, with water droplets from the spray being from about 0.01 to 0.5 mm in diameter,

(4) means to supply carbonic acid gas to the storage container,

(5) a siphon tube having an open end near the bottom wall of said water storage container to carry collected carbonated water from the storage container, and

(6) said outlet ports in the bottom wall of said perforated bowl permitting outflow therefrom of from about 3 to 30% of water supplied to said perforated bowl from said water supply line, and said outlet ports in the sidewalls of said perforated bowl permitting outflow therefrom of from about 70 to 97% of water supplied to said perforated bowl from said water supply line.

The examiner relies upon the following references as evidence of obviousness:

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Mueller	1,043,127	Nov. 5, 1912
Mauthe et al. (Mauthe)	1,986,736	Jan. 1, 1935
Holinger	2,339,640	Jan. 18, 1944
Gee et al. (Gee)	3,172,736	Mar. 9, 1965
Cornelius	3,248,098	Apr. 26, 1966
Vesel	4,249,920	Feb. 10, 1981
Schiffstner	4,432,914	Feb. 21, 1984
Taylor	4,489,565	Dec. 25, 1984
Parks	4,632,275	Dec. 30, 1986

Appellant's claimed invention is directed to an apparatus and method for manufacturing carbonated water. The apparatus contains supply lines for water and carbonic acid gas which feed the materials into a container that stores the carbonated water formed therein. The apparatus also comprises a perforated bowl or container connected to its upper portion for receiving the sprayed feed of water.

The appealed claims stand rejected under 35 U.S.C. § 103 as follows:

(a) claims 1-12 over either Cornelius or Holinger in view of Taylor and any of Vesel, Mauthe or Mueller in further view of Schiffstner;

(b) claim 13 over either Cornelius or Holinger in view of Taylor and Gee;

(c) claims 14 and 15 as in (b) above in further view of Parks; and

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(d) claim 16 as in (a) above in further view of Gee.

We have carefully reviewed each of appellant's arguments for patentability. However, we concur with the examiner that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of § 103 in view of the applied prior art. Accordingly, we will sustain the examiner's rejections for essentially those reasons expressed in the Answer.

We consider first the examiner's rejection of claim 1. Like appellant, Cornelius and Holinger disclose an apparatus for manufacturing carbonated water comprising a nozzle for supplying an atomized spray of water and a bowl-like receptacle for receiving the atomized water in conjunction with carbonic acid gas. The receptacle of Cornelius is non-apertured whereas the receptacle of Holinger has openings in its sidewalls for allowing the prepared carbonated water to exit to the bottom of the storage container. While, as urged by appellant, Cornelius and Holinger are silent regarding the diameter of the atomized water droplets, we agree with the examiner that one of ordinary skill in the art would reasonably expect that the nozzles of Cornelius and Holinger

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would inherently produce water droplets within the claimed range of 0.01 to 0.5 mm. Furthermore, since it is notoriously well known in the art that mass transfer by a gas into a liquid is increased by atomizing the liquid in order to increase the effective surface area, we find that it would have been a matter of obviousness for one of ordinary skill in the art to determine the appropriate size of the atomized droplets in order to optimize the amount of gaseous carbonic acid absorbed by the water. In re Boesch, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). In relevant part, Mueller, who also discloses an apparatus for making carbonated water, discloses "[t]o success-fully carbonate liquids to the maximum degree it is primarily essential that the liquid to be carbonated shall be presented in a finely divided state to the carbonic acid gas so as to present as large a surface as possible to the latter" (page 3, lines 122-127).

Also, since claim 1 encompasses an apparatus wherein 97% of the supplied water exits apertures in the sidewalls of the receptacle and only 3% of the supplied water exits through apertures in the bottom wall of the receptacle, we concur with

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the examiner that it would have obvious for one of ordinary skill in the art to slightly modify the receptacle of Holinger so that a minor portion of the carbonated water exits through plate 26, especially since Mueller discloses that it was known in the art to allow all the carbonated water to exit through the bottom of a bowl-like receptacle 95. Appellant has presented no objective evidence of nonobviousness to rebut the prima facie obviousness of employing the claimed perforated bowl, e.g., evidence which establishes that the use of a perforated bowl within the scope of the appealed claims produces unexpected results viz-à-vis the receptacle of either Holinger or Cornelius. Our same reasoning applies to separately argued apparatus claim 3 and separately argued method claim 8 which require only outlet perforations in the bottom wall of the receptacle.

Apparatus claims 13 and 16 recite the further requirement that the speed of the water droplets is at least 5 cm/sec. However, we agree with the examiner that, although Cornelius and Holinger are silent with respect to the speed of the atomized water droplets, it is reasonable to conclude that the atomized droplets of Cornelius and Holinger achieve a velocity

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of at least 5 cm/sec., particularly since Holinger discloses the pressure of the feed water must be about 15 pounds higher than the pressure of the gas within the container (page 2, left column, lines 51 et seq.), and Cornelius discloses that a jet of pressurized water is discharged through the nozzle in order to create turbulence (column 1, lines 46 et seq.). In any event, we are persuaded that it would have been obvious for one of ordinary skill in the art to determine the optimum speed of the water droplets which maximizes the mass transfer of gaseous carbonic acid into the water droplets. In re Boesch, 617 F.2d at 276, 205 USPQ at 219. Appellant has proffered no objective evidence that the claimed droplet speed would have been nonobvious to one of ordinary skill in the art or produces unexpected results relative to droplet speeds conventionally used in apparatus for making carbonated water.

In conclusion, based on the foregoing, the examiner's decision rejecting the appealed claims is affirmed.

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

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AFFIRMED

MICHAEL SOFOCLEOUS	)	
Administrative Patent Judge	)	
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EDWARD C. KIMLIN	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
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JOHN D. SMITH	)	
Administrative Patent Judge	)	

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Eugene L. Szczecina Jr.  
Darby & Darby  
805 Third Ave.  
New York, NY 10022