

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ANTHONY B. CASTRO, PHILLIP L. LAFFOON, JAMES P. LAWHORN
and GARY T. SUITS

Appeal No. 96-2416
Application 08/206,447¹

ON BRIEF

Before MEISTER, STAAB and NASE, *Administrative Patent Judges*.
STAAB, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal from the examiner's final rejection of claims 1-15, all the claims in the application. We *reverse*.

Appellants' invention pertains to an ink jet printing system, and in particular to an ink delivery system therefor that

¹Application for patent filed March 4, 1994.

Appeal No. 96-2416
Application 08/206,447

includes a periodically replenished "accumulator" for supplying pressurized ink to the printhead. The system is said to allow for easy replacement of an emptied ink bottle with a fresh bottle without interrupting the operation of the printhead. Claim 1, a copy of which is appended to this opinion, is illustrative of the appealed subject matter.

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

Debare	3,738,776	Jun. 12, 1973
Cruz-Uribe et al. (Cruz-Uribe)	4,340,896	Jul. 20, 1982
Osaki et al. (Osaki)	4,388,630	Jun. 14, 1983

Claims 1-15 stand rejected under 35 U.S.C. § 103 as being unpatentable over Cruz-Uribe in view of Osaki and Debare.

With reference to appellants' drawing Figure 1, claim 1 requires, *inter alia*, (a) an accumulator 5 comprising a member 41 movable in the chamber 19 for defining an expansible chamber means 9 for holding a supply of ink under pressure for delivery to a printhead 1, (b) a port 103 for delivering ink to the accumulator from an ink supply 15 and for delivery of ink under pressure from the accumulator to the printhead, (c) means 85 for exerting a biasing force on the movable member for pressurizing the ink, (d) a pump 13 for pumping ink from the ink supply to the

Appeal No. 96-2416
Application 08/206,447

accumulator chamber, and (e) means 63, 119, 121, 131, etc. for effecting operation of the pump in response to a change in volume of ink in the accumulator chamber.

Cruz-Uribe, the primary reference, discloses an ink jet ink delivery system comprising a printhead 12.1 - 12.3, an ink supply 22, and a pump 26 for pumping ink from the ink supply to the printhead. The system of Cruz-Uribe further includes a pressure regulator 36 "to maintain the input pressure [of the pump] at a preset level relative to ambient pressure" (col. 3, lines 8-10). The pressure regulator may use electromechanical elements such as a transducer 50 for generating a pressure signal 52 representative of the pressure in the line downstream of the pump, a source 58 for generating a reference signal 56, and a comparator 54 for comparing the pressure and reference signals and generating a difference or error signal 60 in response to the pressure and reference signals. The error signal in turn varies the speed of the pump in a direction to drive the error signal to a minimum level (col. 3, lines 56-67).

Osaki pertains to an ink supply system for an ink jet printer, and in particular to a system that compensates for temperature variation. The system of Osaki comprises a constant flow rate pump 10, a pressure accumulator 12 downstream of the

Appeal No. 96-2416
Application 08/206,447

pump, and a printhead 18. The accumulator includes a piston-like member 34 that is biased by a spring 36 and a temperature sensitive bimetal resilient member 40. Member 40 "functions to vary the pressure to be applied to the ink liquid in a fashion depending on the variation of the ambience temperature, thereby maintaining the ink liquid flow constant without regard to the temperature variation" (col. 3, lines 62-66).

Debare is directed to a pumping device "in particular for supplying water to a caravan, a bungalow or any other premises" (col. 1, lines 4-6). With reference to Figure 1, the device includes a pump 1 driven by a motor 2 for pumping water from a storage tank 4. Located downstream of the pump are a spring biased check valve 6, diaphragm 7 operatively connected to the motor by a contactor 8, and a cock 9. The pumping device of Debare operates as follows. When the cock is opened, pressure in the line 5 at the location of the diaphragm drops, with the result that the contactor closes the electric circuit of the motor, thereby starting the motor and pump to feed water to the cock (col. 2, lines 27-30). When the cock is closed, water pressure at the location of the diaphragm increases, causing the check valve to close and the contactor to open the electric

circuit of the motor, thereby stopping the motor and pump until the cock is reopened (col. 2, lines 31-38).

The examiner has taken the position that the pressure regulator 36 of Cruz-Urbe is comparable to the accumulator of the claims "in general terms" (answer, page 5), and that Cruz-Urbe differs from claim 1 "in the details of the pressure regulator" (answer, page 4). While conceding on page 5 of the answer that Cruz-Urbe fails to disclose (1) an accumulator with a chamber and a movable body (claim element (a)²), (2) supply and delivery port means (claim element (b)), and (3) means for effecting operation of the pump (claim element (e))³, it is the examiner's view that "[i]t would have been obvious to modify the Cruz-Urbe ink jet printing system with an embodiment for his pressure regulator 36, such as those taught by Osaki and Debare, for the purpose of implementing the Cruz-Urbe ink supply in a known manner" (answer, page 4).

The examiner's rejection is flawed in several respects. First, it is not clear precisely how the examiner proposes to

²These claim element designations by letter are with respect to our analysis of claim 1 *supra*.

³Cruz-Urbe also fails to disclose (4) means for exerting a biasing force on the movable member for pressurizing the ink in the accumulator (claim element (c)).

modify Cruz-Uribe in view of Osaki and Debare in order to arrive at the subject matter of the claims. Second, we do not believe that the pressure regulator 36 of Cruz-Uribe can be fairly equated to appellants' accumulator, notwithstanding that each may be located in the same general position in an ink jet ink supply system and that each may operate in some fashion to control an ink supply pump. Appellants' accumulator is for the purpose of providing a pressurized supply of ink to the printhead. The examiner's view to the contrary notwithstanding, the pressure transducer 36 to Cruz-Uribe is not for this purpose. Further, appellants' accumulator periodically operates the pump to replenish the ink in the accumulator. In contrast, Cruz-Uribe's pressure transducer 36 monitors and regulates the operation of what appears to be a continuously operating pump. Third, while the accumulator 22, 24 of Osaki and the appellants' accumulator are structurally similar in several respects, in contrast to appellants' accumulator the accumulator of Osaki is not in any fashion operatively connected to the pump 10 to directly control its operation. Fourth, assuming arguendo that Debare is analogous prior art,⁴ we are in accord with appellants that

⁴We appreciate that appellants do not concede this point. See, for example, pages 16-17 of the main brief.

Appeal No. 96-2416
Application 08/206,447

Debare's disclosure is essentially that of a pressure responsive switch and not an accumulator for holding a supply of pressurized liquid for delivery downstream when the pump is off.

As our court of review indicated in *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992), it is impermissible to use the claimed invention as an instruction manual or "template" to piece together isolated disclosures and teachings of the prior art so that the claimed invention is rendered obvious. In our view, this is precisely what the examiner has done in combining the disparate teachings of the applied references in an effort to arrive at a facsimile of the claimed invention.

Appeal No. 96-2416
Application 08/206,447

The decision of the examiner is reversed.

REVERSED

JAMES M. MEISTER)	
Administrative Patent Judge))	
)	
)	
LAWRENCE J. STAAB)	BOARD OF PATENT
Administrative Patent Judge))	APPEALS AND
)	INTERFERENCES
)	
)	
JEFFREY V. NASE)	
Administrative Patent Judge))	

Appeal No. 96-2416
Application 08/206,447

Senniger, Powers, Leavitt & Roedel
One Metropolitan Square
16th Floor
St. Louis, MO 63102

APPENDIX

1. An ink jet printing system comprising at least one ink jet printhead and means for supplying ink under pressure to the printhead wherein said means comprises:

an accumulator for holding a supply of ink under pressure for delivery to the printhead, said accumulator comprising expansible chamber means comprising a body having a chamber therein, and a member movable in one direction in said chamber for decreasing the volume of said chamber and in the opposite direction for increasing the volume of said chamber,

said chamber being ported for delivery of ink thereinto from an ink supply and for delivery of ink under pressure therefrom to said printhead;

means for exerting force on said member for biasing it for movement in said one direction in said chamber for pressurizing ink filling said chamber to capacity and for forcing ink out of said chamber for delivery to said printhead on demand for ink by said printhead;

a pump for pumping ink from an ink supply to said chamber;
and

means for effecting operation of the pump to deliver ink from said supply to said chamber in response to decrease in volume of said chamber and in the corresponding volume of ink therein to a predetermined lower limit resulting from delivery of ink from said chamber to said printhead and for cutting off operation of the pump in response to increase in volume of said chamber and in the corresponding volume of ink therein to a predetermined upper limit resulting from delivery of ink from said supply to said chamber to fill said chamber to capacity.