Paper No. 13

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RICHARD N. ELLSON

Appeal No. 2001-1081
Application No. 09/067,965

ON BRIEF

Before HAIRSTON, DIXON, and BARRY, Administrative Patent Judges.

HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 19.

The disclosed invention relates to a method and apparatus for controlling the out of phase operation of first and second printheads in a multiple drop per spot printing system.

Claim 1 is illustrative of the claimed invention, and it reads as follows:

1. A multiple drop per spot printing system, comprising:

a first printhead and a second printhead having ejectors for ejecting drops of ink onto a recording medium; the ejectors of each printhead having a spot cycle with N actuation intervals,

where N is an integer greater than one; each ejector ejecting onto the recording medium at most one drop of ink during each actuation interval of the spot cycle forming a spot of ink having up to N drops of ink;

a memory, coupled to said first printhead and said second printhead, for specifying a set of ejectors from said printhead for a first actuation interval of the spot cycle and a set of ejectors from said second printhead for a second actuation interval of the spot cycle, with the first actuation interval of the spot cycle of said first printhead being out of phase with the second actuation interval of the spot cycle of said second printhead by an integral number of actuation intervals less than N; and

a power supply, coupled to said first printhead and second printhead, for simultaneously actuating the first set of ejectors from said first printhead and the second set of ejectors from said second printhead specified by said memory.

The references relied on by the examiner are:

Hara et al. (Hara)	4,251,824	Feb. 17, 1981
Yasufuku et al. (Yasufuku)	4,399,443	Aug. 16, 1983
Hawkins et al. (Hawkins)	5,371,530	Dec. 6, 1994
Hadimioglu	5,589,864	Dec. 31, 1996

Claims 1 through 3 and 5 through 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hadimioglu in view of Hawkins.

Claim 4[1] stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Hadimioglu in view of Yasufuku.

Claims 17 through 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hara in view of Hawkins.

[1] Inasmuch as claim 4 depends from claim 1, we assume that Hawkins is part of the combination of references used to reject this claim.

Reference is made to the brief (paper number 11) and the answer (paper number 12) for the respective positions of the appellant and the examiner.

OPINION

We have carefully considered the entire record before us, and we will reverse the obviousness rejection of claims 1 through 19.

According to the examiner's analysis (answer, pages 4 through 6), Hadimioglu discloses all of the system structure set forth in claim 1. The examiner's contentions to the contrary notwithstanding, Hadimioglu is directed to a single printhead 300, and to the control of the ink ejectors 131 in this single printhead (Figure 10; column 3, lines 12 and 13; column 6, lines 27 through 59). A second printhead is not described by Hadimioglu. Since the examiner relied on the secondary teachings of Hawkins for the latches of dependent claim 9, we agree with the appellant's argument (brief, page 6) that "Hadimioglu taken singly or in combination with Hawkins fail[s] to teach or suggest the claimed combination of . . . a multiple drop per spot printer with a first printhead and a second printhead; a memory for specifying ejectors of the printheads where the actuation interval of the spot cycle of a first printhead is out of phase with the actuation interval of the second printhead . . ." (emphasis added). Accordingly, the obviousness rejection of claims 1 through 3 and 5 through 16 is reversed.

The obviousness rejection of claim 4 is reversed because the teachings of Yasufuku fail to cure the noted shortcoming in the teachings of Hadimioglu.

Turning to the obviousness rejection of claims 17 through 19, the examiner is of the opinion (answer, page 8) that Hara discloses all of the steps of method claim 17. Hara is directed to the selective control of heat generating bodies 208-1 through 208-5 in a discharge orifice of an ink jet delivery device to thereby develop foams 218-1 through 218-5 for different sized ink droplets 220 (Figure 2C; Abstract; column 5, lines 26 through 52). The examiner relied on the teachings of Hawkins for the memory retrieval step of claim 19 (answer, page 9). Thus, the obviousness rejection of claims 17 through 19 is reversed because we agree with appellant's argument (brief, page 8) that Hara and Hawkins fail to disclose first and second printheads operated out of phase with respect to each other.

DECISION

The decision of the examiner rejecting claims 1 through 19 under 35 U.S.C. § 103(a) is reversed.

REVERSED

KENNETH W. HAIRSTON Administrative Patent Judge	)))))) BOARD OF PATENT
JOSEPH L. DIXON Administrative Patent Judge	) APPEALS) AND) INTERFERENCES
LANCE LEONARD BARRY Administrative Patent Judge	))))

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