

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(2) is not binding precedent of the Board.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. 36

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TATSUHIKO SHIGEMOTO

Appeal No. 95-2911
Application 07/814,693¹

ON BRIEF

Before KRASS, FLEMING and LEE, ***Administrative Patent Judges.***

FLEMING, ***Administrative Patent Judge.***

DECISION ON APPEAL

This is a decision on appeal from the final rejection of

¹Application for patent filed December 30, 1991. According to appellant, this application is a division of Application 07/525,607, filed May 21, 1990, now U.S. Patent No. 5,166,846, issued November 24, 1992.

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claims 5 and 8 through 10, all of the claims pending in the present application. Claims 1 through 4, 6, 7 and 11 have been canceled.

The invention relates to a carriage for a floppy disk drive for carrying the magnetic head. In particular, Appellant discloses on pages 11 and 12 of the specification and illustrates in Figures 3a and 3b a floppy disk drive assembly having a magnetic head 7 and a carriage 21 for carrying the magnetic head. Appellant discloses that the carriage includes a narrow bracket portion 24 extending therefrom and having an integrally formed, upraised, wedge-shaped element 25 having flat sides tapering to a thin edge for engagement with a thread groove of a feed screw 43 and being formed of press-worked sheet metal, the sheet-metal being the same sheet-metal forming the carriage 21 so as to form a unitary structure.

The independent claim 5 is reproduced as follows:

5. A floppy disk drive assembly having a magnetic head for recording information on and/or reproducing information from a floppy disk comprising: a carriage formed of sheet metal for carrying the magnetic head; and drive means for driving the carriage so as to enable the magnetic head to scan a track formed on a side of the floppy disk, in which the drive means includes a feed screw and a motor for driving the feed screw and in which the sheet metal forming the carriage includes a narrow bracket portion extending therefrom and having an integrally formed,

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upraised, wedge-shaped element having flat sides tapering to a thin edge for engagement with a thread groove of the feed screw and being formed of press-worked sheet metal, the sheet-metal being the same sheet-metal forming the carriage so as to form a unitary structure, whereby a torque of the motor is transmitted to the carriage through the feed screw and the wedge-shaped element of the carriage.

The Examiner relies on the following references:

Tanaka	4,422,112	Dec. 20, 1983
Inoue	4,809,106	Feb. 28, 1989
Kato et al. (Kato)	4,881,142	Nov. 14, 1989 (filed Sep. 30, 1988)
Aruga et al. (Aruga)	5,032,941	Jul. 16, 1991 (filed Jan. 24, 1989)
Maeda et al. (Maeda)	5,189,570	Feb. 23, 1993 (filed Aug. 15, 1991)

Claims 5 and 8 through 10 stand rejected under 35 U.S.C. § 103 as being unpatentable over Maeda and Kato. Claims 5 and 8 through 10 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kato, Aruga, Tanaka and Inoue.

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Rather than reiterate the arguments of Appellant and the Examiner, reference is made to the briefs² and answer³ for the respective details thereof.

OPINION

We will not sustain the rejection of claims 5 and 8 through 10 under 35 U.S.C. § 103.

The Examiner has failed to set forth a *prima facie* case. It is the burden of the Examiner to establish why one having ordinary skill in the art would have been led to the claimed invention by the express teachings or suggestions found in the prior art, or by implications contained in such teachings or suggestions. *In re Sernaker*, 702 F.2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983). "Additionally, when determining obviousness, the claimed invention should be considered as a whole; there is

²Appellant filed an appeal brief on July 18, 1994. We will refer to this appeal brief as simply the brief. Appellant filed a response to the new ground of rejection on December 30, 1994. We will refer to this response as the reply brief.

³The Examiner responded to the brief with an Examiner's answer, dated October 14, 1994. We will refer to the Examiner's answer as simply the answer. We note that the answer contains a new ground of rejection rejecting claims 5 and 8 through 10 under 35 U.S.C. § 103 as being unpatentable over Kato, Aruga, Tanaka and Inoue. The Examiner responded to the reply brief with a supplemental Examiner's answer dated April 24, 1996. We will refer to the Supplemental Examiner's answer as simply the supplemental answer.

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no legally recognizable 'heart' of the invention." **Para-Ordnance Mfg. v. SGS Importers Int'l, Inc.**, 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995), **cert. denied**, 117 S.Ct. 80 (1996) **citing W. L. Gore & Assocs., Inc. v. Garlock, Inc.**, 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983), **cert. denied**, 469 U.S. 851 (1984).

In regard to the rejection of claims 5 and 8 through 10 under 35 U.S.C. § 103 as being unpatentable over Maeda and Kato, Appellant argues on pages 6 and 7 of the brief that Maeda and Kato, together or individually, fail to teach or suggest a sheet metal head carriage having a sheet metal upraised wedge-shape element having flat sides tapering to a thin edge. We note that Appellant's claim 5 recites a

floppy disk drive assembly having a magnetic head . . . comprising: a carriage formed of sheet metal for carrying the magnetic head; . . . in which the sheet metal forming the carriage includes a narrow bracket portion extending therefrom and having an integrally formed, upraised, wedge-shaped element having flat sides tapering to a thin edge for engagement with a thread groove of the feed screw and being formed of press-worked sheet metal, the sheet-metal being the same sheet-metal forming the carriage so as to form a unitary structure.

The Examiner argues on pages 4 and 5 of the answer that it would have been obvious to those skilled in the art to modify the carriage of Maeda in view of the Kato teaching of using sheet

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metal to obtain Appellant's invention as recited in claim 5.

The Examiner further states on pages 4 and 5 of the answer that

[i]t was well known in the art to make use of this advantage [the advantage of sheet metal to be stamped into desired shapes] to form structures (which are not expected or designed to undergo movement relative to each other) as a unitary body so as to simplify the assembly thereof and to better ensure that such structures do not move relative to each other.

Upon a careful review of Maeda and Kato, we find that neither reference teaches

a carriage formed of sheet metal for carrying the magnetic head; . . . in which the sheet metal forming the carriage includes a narrow bracket portion extending therefrom and having an integrally formed, upraised, wedge-shaped element having flat sides tapering to a thin edge for engagement with a thread groove of a feed screw and being formed of press-worked sheet metal, the sheet-metal being the same sheet-metal forming the carriage so as to form a unitary structure as recited in Appellant's claim 5. In Figure 1, Maeda shows the carriage 10 and a part separate from the carriage, a needle 22 for engagement with a thread groove 21 of the feed screw. In addition, the Examiner agrees that Maeda does not meet the above limitations recited in Appellant's claim 5. In particular, the Examiner states on page 3 of the answer that Maeda does not teach "the carriage and the engagement piece being formed as a unitary body from the same sheet metal."

Kato teaches in Figure 7 a carriage 38 and a part separate from the carriage, a needle 39c for engagement with a thread

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groove 21 of the feed screw. Thus, Kato does not teach the above limitations recited in Appellant's claim 5. Furthermore, the Examiner agrees that Kato does not meet the above limitations recited in Appellant's claim 5. In particular, the Examiner states on page 6 of the answer that Kato does not teach the following:

A...a thread groove engaging member as being wedge shaped with flat sides, **B...**that the carriage and the thread groove engaging member are formed as a unitary member **C...**that the carriage and the thread groove engaging member are formed press-worked sheet metal.

We are not inclined to dispense with proof by evidence when the proposition at issue is not supported by a teaching in a prior art reference, common knowledge or capable of unquestionable demonstration. Our reviewing court requires this evidence in order to establish a *prima facie* case. *In re Knapp-Monarch Co.*, 296 F.2d 230, 232, 132 USPQ 6, 8 (CCPA 1961); *In re Cofer*, 354 F.2d 664, 668, 148 USPQ 268, 271-72 (CCPA 1966). Therefore, we will not sustain the rejection of claims 5 and 8 through 10 under 35 U.S.C. § 103 as being unpatentable over Maeda and Kato.

Claims 5 and 8 through 10 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kato, Aruga, Tanaka and Inoue. Appellant argues on pages 6 and 7 of the brief and the reply brief that Kato, Aruga, Tanaka and Inoue, together or individ-

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ually, fail to teach or suggest a lead screw follower formed as an upraised wedge-shape element having flat sides that engage the thread groove of the feed crew, and in which this wedge-shape element is formed of the very same press-worked sheet metal as

the head carriage itself. For emphasis, we note that Appellant's claim 5 recites a

floppy disk drive assembly having a magnetic head . . . comprising: a carriage formed of sheet metal for carrying the magnetic head; . . . in which the sheet metal forming the carriage includes a narrow bracket portion extending therefrom and having an integrally formed, upraised, wedge-shaped element having flat sides tapering to a thin edge for engagement with a thread groove of the feed screw and being formed of press-worked sheet metal, the sheet-metal being the same sheet-metal forming the carriage so as to form a unitary structure.

Upon a careful review of Kato, Aruga, Tanaka and Inoue, we find that none of these references teach a carriage formed of sheet metal

in which the sheet metal forming the carriage includes a narrow bracket portion extending therefrom and having an integrally formed, upraised, wedge-shaped element having flat sides tapering to a thin edge for engagement with a thread groove of the feed screw and being formed of press-worked sheet metal, the sheet-metal being the same sheet-metal forming the carriage so as to form a unitary structure

as recited in Appellant's claim 5.

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Kato teaches in Figure 7 a carriage 38 and a part separate from the carriage, a needle 39c for engagement with a thread groove 21 of the feed screw. Thus, Kato does not teach the above limitations recited in Appellant's claim 5. Furthermore, we note that the Examiner has stated in the answer and the supplemental answer that Kato fails to teach these limitations.

In column 3, line 50, through column 4, line 11, and illustrated in Figures 2A and 2B, Tanaka teaches a carriage 16 and a part separate from the carriage, an inclined blade 212, for engagement with a thread groove of the threaded shaft 210. Thus, Tanaka does not teach the above limitations recited in Appellant's claim 5.

In column 3, line 66, through column 4, line 39, and illustrated in Figures 1 and 2, Inoue teaches a carriage 18 and a part separate from the carriage, a pin 49, for engagement with the lead screw 44. In the answer and in the supplemental answer, the Examiner points to column 1, lines 27-31, for the teaching that the carriage and the pin may be formed as a unitary member. Inoue states in column 1, lines 25-31,

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[w]hile a variety of motion translating mechanisms have been suggested and used, perhaps the most widely accepted in the art is a lead screw which is coupled directly to the stepper motor and which is matingly engaged with the head carriage either directly or via suitable means mounted to the carriage.

Inoue does not provide any further disclosure as to what was meant by having the lead screw matingly engaged with the head carriage directly. While we could accept the Examiner's invitation for us to speculate, we will not do so for this appeal. Thus, we find that Inoue does not teach a carriage formed of sheet metal

in which the sheet metal forming the carriage includes a narrow bracket portion extending therefrom and having an integrally formed, upraised, wedge-shaped element having flat sides tapering to a thin edge for engagement with a thread groove of the feed screw and being formed of press-worked sheet metal, the sheet-metal being the same sheet-metal forming the carriage so as to form a unitary structure

as recited in Appellant's claim 5.

Turning to Aruga, we agree that Aruga teaches in column 6, lines 5-61, and illustrated in Figure 7, a pinion 4 which engages in a rack 3a of a carriage 3. However, Aruga does not teach

the carriage includes a narrow bracket portion extending therefrom and having an integrally formed, upraised, wedge-shaped element having flat sides tapering to a thin edge for engagement with a thread groove of the feed screw and being formed of press-worked sheet metal, the sheet-metal being the same

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sheet-metal forming the carriage so as to form a unitary structure

as recited in Appellant's claim 5.

Furthermore, we fail to find any suggestion of modifying Kato to provide a carriage as recited in Appellant's claim 5. The Federal Circuit states that "[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 re Fritch***, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992), ***citing In re Gordon***, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). "Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor." ***Para-Ordnance Mfg.***, 73 F.3d at 1087, 37 USPQ2d at 1239, ***citing W. L. Gore***, 721 F.2d at 1551, 1553, 220 USPQ at 311, 312-13.

We have not sustained the rejection of claims 5 and 8 through 10 under 35 U.S.C. § 103. Accordingly, the Examiner's decision is reversed.

REVERSED

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