

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CHRISTOPHER A. POLLARD

Appeal No. 97-1758
Application No. 08/326,721¹

ON BRIEF

Before KRASS, FLEMING, and BARRY, Administrative Patent Judges.
BARRY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the final rejection of claims 1 and 3-22. The appellant filed an amendment after final rejection on March 11, 1996, which was entered. We reverse.

¹ The application, entitled "Carriage for Optical Disk Storage and Retrieval Array," was filed October 20, 1994.

BACKGROUND

The invention at issue in this appeal relates to disk cartridge storage and retrieval systems. More specifically, it defines three features of a carriage for transporting disk cartridges within such a storage and retrieval system. First, the invention mounts a sleeve assembly to the carriage at two points on the assembly. One point is near the open end of the sleeve that receives a cartridge. Second, the invention attaches motors to the carriage with self-tensioning mounts. The mounts allow the motors to be fastened without measuring the tension of belts driven by the motors. Third, the invention connects the carriage to a worm screw with a two-way flexure. The flexure permits planar movement of the carriage perpendicular to the worm screw's axis while reducing rotational movement of the carriage about the axis.

Claim 1, which is representative for our purposes, follows:

1. A disk cartridge storage and retrieval system comprising;

a carriage for transporting disk cartridges between a plurality of locations,

a first pulley fixed to the carriage for moving the disk cartridge contained in the carriage to a specified fixed position,

a motor for driving the first pulley,

a belt coupling the motor to the first pulley whereby the motor can drive the first pulley to move the disk cartridge, and

a spring coupled between the motor and the carriage positioned so as to exert a force between the carriage and the motor opposite to a force exerted between the first pulley and the motor by the belt so as to create a predetermined tension on the belt at a time prior to said motor being fixedly mounted to said carriage, and

means for fixedly mounting the motor to the carriage in a position dictated by the spring force and the belt tension.

The references relied on by the patent examiner in rejecting the claims follow:

Lissner et al. (Lissner) 15, 1974	3,786,454	Jan.
Fago 21, 1989	4,815,055	Mar.
Glover et al. (Glover) 1991	4,982,847	Jan. 8,
Wanger et al. (Wanger) 1991	5,014,255	May 7,
Dimitri et al. (Dimitri) 27, 1994	5,377,121	Dec.

	(filed June 10,	
1994)		
Jadrich et al. (Jadrich)	5,392,662	Feb.
28, 1995		
	(filed Sept. 20, 1993).	

Claims 13 and 14 stand rejected under 35 U.S.C. § 102(b) as anticipated by Wanger. Claims 1, 4-8, and 15 stand rejected under 35 U.S.C. § 103 as obvious over Fago in view of Lissner. Claims 3 and 16 stand rejected under § 103 as obvious over Fago in view of Lissner further in view of Glover. Claims 9-12 and 19-22 stand rejected under § 103 as obvious over Dimitri in view of Fago and Lissner further in view of Jadrich. Claim 16 stands rejected under § 103 as obvious over Fago in view of Lissner further in view of Glover. Claims 17 and 19 stand rejected under § 103 as obvious over Fago in view of Lissner, Dimitri, and Jadrich further in view of Wanger. Rather than repeat the arguments of the appellant or examiner in toto, we refer to the appeal brief and the examiner's answer for the respective details thereof.

OPINION

In reaching our decision in this appeal, we considered the subject matter on appeal and the rejections and evidence advanced by the examiner. We also considered the appellant's and examiner's arguments. After considering the record before us, it is our view that the evidence does not anticipate the invention of claims 13 and 14. It is also our view that the evidence and level of skill in the art would not have suggested to one of ordinary skill in the art the invention of claims 1, 3-12, and 15-22. Accordingly, we reverse. Our opinion discusses the novelty and nonobviousness of the claims seriatim.

Novelty

We begin our consideration of the novelty of claims 13 and 14 by recalling that a prior art reference anticipates a claim only if the reference discloses expressly or inherently every limitation of the claim. Absence from the reference of any claimed element negates anticipation. Rowe v. Dror, 112 F.3d 473, 478, 42 USPQ2d 1550, 1553 (Fed. Cir. 1997).

Regarding independent claim 13, the examiner characterizes Wanger as follows.

Wanger '255 discloses a disk cartridge storage and retrieval system comprising (col. 1, lines 40-50) a plurality of disk cartridges in storage locations; a sleeve assembly 18 for temporarily storing one of the disk cartridges for transportation (see Fig. 1) including a front end having an aperture for receiving a cartridge and a back end opposite said first end; a carriage 234 for precisely position[ing] the sleeve with the aperture adjacent to a storage location; said sleeve being rotatably mounted to said carriage at a first mounting location 176 and at second mounting location 122, said first mounting location being adjacent said aperture. (Final Rejection at 3.)

In response the appellant observes, "Wanger expressly teaches that the sleeve assembly is attached to the carriage only at one point and that the one point is in the rear of the sleeve assembly." (Appeal Br. at 12.)

We find that Wanger fails to teach the mounting of claim 13. The claim recites in pertinent part a "sleeve being rotatably mounted to the carriage at first and second mounting locations, the first mounting location being adjacent the aperture." (Appeal Br., App. A at 4.) Wanger teaches a "guide assembly supporting assembly 225," col. 7, l. 66, for

rotatably mounting a sleeve assembly 12 to a block 234. The supporting assembly comprises a shaft 232. One end of the shaft is attached to the rear end of the guide assembly's yoke member 114. The other end of the shaft is attached to block 234. Col. 7, l. 65 - col. 8, l. 5. In summary, Wanger's sleeve is mounted to its carriage only at one point, and the point is in the rear of the sleeve assembly.

Comparison of the claim language to the reference's teaching evidences that Wanger's supporting assembly does not anticipate the claimed mounting. The claimed sleeve is mounted to the carriage "at first and second mounting locations." (Appeal Br., App. A at 4.) In contrast, the reference's sleeve assembly is mounted to its block at a single mounting location, viz., the rear end of the guide assembly's yoke member. Col. 8, ll. 2-4. The first claimed mounting location is "adjacent the aperture," for receiving a disk cartridge. (Appeal Br., App. A at 4.) In contrast, Wanger's single mounting location and aperture reside at opposite ends of the reference's sleeve assembly. The mounting location is at the rear end 16; the aperture, at the

forward end 14. See Fig. 1. In summary, the claimed two mounting locations, with one location adjacent to the aperture, are absent from Wanger. The absence of the claimed elements negates anticipation of independent claim 13 and its dependent claim 14. Therefore, we reverse the rejection of claims 13 and 14 under 35 U.S.C. § 102.

Nonobviousness

We begin our consideration of the nonobviousness of claims 1, 3-12, and 15-22 by recalling that in rejecting claims under 35 U.S.C. § 103, the patent examiner bears the initial burden of establishing a prima facie case of obviousness. A prima facie case is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art. If the examiner fails to establish a prima facie case, an obviousness rejection is improper and will be overturned. In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). With this in mind, we analyze the examiner's rejections.

Regarding independent claims 1 and 15, the examiner notes that Fago teaches a disk cartridge storage and retrieval system comprising a carriage, a first pulley or moving means, a motor, and a belt or coupling means as claimed. (Final Rejection at 4, 8.) He admits, "Fago Jr. does not disclose a spring coupled between the motor and the cartridge to create a predetermined tension in the belt, or the position of the motor being dictated by the spring force and the belt." (Id. at 4.) The examiner characterizes Lissner as follows.

Lissner discloses (see Fig. 2a) a magnetic disk storage apparatus in which rotation is transmitted between a motor 25 and a pulley 18 by a belt 44, and tension is created in the belt by a spring 52 mounted between a housing and a motor plate 50 to which said motor is fixed so as to exert a force between the housing and the motor opposite to the force exerted between the motor and said pulley by the belt. (Id.)

He concludes that it would have been obvious to add a spring as disclosed by Lissner to the pulley and belt arrangement of Fago "to insure proper tension of the belt even in case of lengthening of the belt due to wear." (Id. at 4-5.) The examiner applies similar reasoning to reject independent claim 8. (Id. at 7.) In response the appellant notes that while

the claimed motor is fixedly mounted to the carriage, Lissner teaches a motor that is rotatably mounted. (Appeal Br. at 13-14.)

We find that the reference separately or in combination with Fago fails to suggest the means for fixedly mounting of claims 1 and 15 or the corresponding step of fixing the motor of claim 8. Claims 1 and 15 recite in pertinent part a "means for fixedly mounting the motor to the carriage in a position dictated by the spring force and the belt tension." (Appeal Br., App. A at 1, 5.) Claim 8 recites in pertinent part "fixing the motor to the carriage." (Id. at 3.)

Lissner teaches in pertinent part attaching a drive motor 24 to the base of a disk file. The motor is attached to a motor mount plate 50, which pivots about a pivot point 54. With a spring 52 attached thereto, the plate "serves to tension" a belt 44 against the motor and a pulley 18 of a cartridge 10. Col. 5, ll. 61-67.

Comparison of the claim language to the reference's teaching evidences that Lissner would not have suggested the claimed mounting. The claimed motor is mounted "fixedly," (Appeal Br., App. A at 1, 5); it is "fixed to the carriage." (Id. at 3.) During assembly, screws are tightened to fix the motor in place. (Id. at 6; see also Spec. at 15.) Consequently, the motor does not move during operation. In contrast, the reference's motor moves around its pivot point during operation.

As aforementioned, the examiner reasoned that combining Lissner's mounting arrangement with Fago's pulley and belt would allow the combination to take-up slack in the belt as wear caused the belt to stretch over time. To take-up slack, however, a pulley on the drive shaft of the motor must be able to move during operation. If the motor was fixed as claimed the shaft's pulley would be unable to move so as to take-up slack over time. For the foregoing reasons, the examiner failed to show that the references would have suggested fixedly mounting the motor as in independent claim 1 and its dependent claims 4-7 and in independent claims 8 and

15. Because neither Glover, Dimitri, Jadrich, nor Wanger cures the deficiencies in the combination of Fago and Lissner, we also cannot sustain the rejection of dependent claims 3 and 16-18. Accordingly, we find the examiner's rejections of these claims do not amount to a prima facie case of obviousness. Because the examiner has not established a prima facie case, the rejection of claims 1, 3-8, and 15-18 is improper. Therefore, we reverse the rejection of the claims 1, 3-8, and 15-18 under 35 U.S.C. § 103.

Regarding independent claim 9, the examiner notes that Dimitri discloses a disk cartridge storage and retrieval system comprising a worm screw, a carriage, and a nut assembly engaging the worm screw as claimed. He also observes that Fago teaches a disk cartridge storage and retrieval system comprising a shaft and a carriage engaged to the shaft by a bushing. The examiner admits, "Dimitri in view of Fago Jr. does not disclose a flexure coupled to said nut assembly, or a particular structure of said flexure." (Final Rejection at 9.)

He characterizes Jadrich as follows.

Jadrich discloses a flexure member coupled to a nut assembly to provide uniform motion to a carriage along the worm screw axis and permitting horizontal movements of the carriage without permitting motion along the worm screw axis (col. 3, lines 32-42 and Fig. 2). It is noted that a motion along the screw axis would be a rotational motion. (Id. at 10)

He concludes that it would have been obvious to connect a flexure as disclosed by Jadrich to the nut assembly disclosed by Dimitri and Fago "to prevent unwanted displacement of the carriage along the worm screw. . . ." (Id. at 10-11.) In response the appellant notes, "Jadrich will perform a function which the present flexure is specifically designed to prevent, i.e.,

rotational movement between the two connected elements."
(Appeal Br. at 23.)

We find that Jadrich separately or in combination with Dimitri and Fago fails to suggest the flexure of claim 9. The claim recites in pertinent part "a flexure coupled between the nut assembly and the carriage, the flexure providing for

planar movement perpendicular to the first direction, but substantially no rotational movement, between the nut assembly and the carriage." (Appeal Br., App. A at 3.)

Jadrich generally teaches a "leadscrew" assembly 10 comprising a leadscrew 12 and a leadscrew drive nut 14 mounted thereon. Col. 2, ll. 64-66. A coupler plate 16 is disposed around and connected to the nut to transfer motion from the nut to a movable carriage. An intermediate member 22 is connected to the plate by a pair of flexure members 28, which are fixed at opposite ends to the member and plate. Col. 2, l. 64 to Col. 3, ll. 1-15.

Comparison of the claim language to the reference's teaching evidences that Jadrich would not have suggested the claimed flexure. The claimed flexure provides "substantially no rotational movement, between the nut assembly and the carriage." (Appeal Br., App. A at 3.) In contrast, the reference's flexure members "permit relative movement of the intermediate members about axes 30 and 36. . . ." Col. 3, ll. 34-36. We appreciate the examiner's observation that

"Jadrich's flexure allows only for minimal rotational movement of the carriage around [an axis] perpendicular to the wormscrew. . . ." (Examiner's Answer at 9.) The appellant emphasizes, however, "[i]n the present invention there is no rotation." (Appeal Br. at 23.) The language of the claim does not permit substantial rotation about any axis. Thus, the direction of rotation in Jadrich is irrelevant. For the foregoing reasons, the examiner failed to show that the references would have suggested the flexure of independent claim 9 and its dependent claims 10-12 and 19-22. Accordingly, we find the examiner's rejection does not amount to a prima facie case of obviousness. Because the examiner has not established a prima facie case, the rejection of claims 9-12 and 19-22 is improper. Therefore, we reverse the rejection of the claims 9-12 and 19-22 under 35 U.S.C. § 103.

CONCLUSION

To summarize, the decision of the examiner to reject claims 13 and 14 under 35 U.S.C. § 102(b) is reversed. In addition, his decision to reject claims 1, 3-12, and 15-22 under 35 U.S.C. § 103 is also reversed.

REVERSED

ERROL A. KRASS)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
MICHAEL R. FLEMING)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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LANCE LEONARD BARRY)	
Administrative Patent Judge)	

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ATTN. THEODORE NACCARELLA
LIMBACH AND LIMBACH
2001 FERRY BUILDING
SAN FRANCISCO, CA 94111