Paper No. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ANDREW M. STRAUCH
and DANIEL W. COSTANZA

Appeal No. 1998-1231
Application No. 08/729,835

ON BRIEF

Before HAIRSTON, BARRETT, and LEVY, Administrative Patent Judges.

LEVY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-11, which are all of the claims pending in this application.

BACKGROUND

Appellants' invention relates to a multiple sensor speed control for a driven member. Specifically, a motor control

signal is generated to prevent motor torque disturbances from affecting the velocity of the driven member. An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced as follows:

1. An apparatus for controlling velocity of a motor component driven in a single direction by a motor, comprising:

a first sensor to detect the velocity of the driven component in a single direction and generate a first signal indicative thereof;

a second sensor to detect the velocity of the motor and generate a second signal indicative thereof; and

a controller, responsive to the first signal and the second signal, for generating a motor control signal to prevent motor torque disturbances from affecting the velocity of the driven component.

The prior art reference of record relied upon by the examiner in rejecting the appealed claims is:

Yoshida et al. (Yoshida) 4,529,920 Jul. 16, 1985

Claims 1-11 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Claims 1-5 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Yoshida.

Claims 6-11 stand rejected under 35 U.S.C. § 103 as being unpatentable over Yoshida.

Rather than reiterate the conflicting viewpoints advanced by the examiner and appellants regarding the above-noted rejections, we make reference to the examiner's answer (Paper No. 19, mailed November 19, 1997) for the examiner's complete reasoning in support of the rejections, and to appellants' brief (Paper No. 18, filed October 14, 1997) for appellants' arguments thereagainst. Only those arguments actually made by appellants have been considered in this decision. Arguments which appellants could have made but chose not to make in the brief have not been considered. See 37 CFR § 1.192(a).

OPINION

In reaching our decision in this appeal, we have carefully considered the subject matter on appeal, and the rejections advanced by the examiner. We have, likewise, reviewed and taken into consideration, in reaching our decision, appellants' arguments set forth in the brief along

with the examiner's rationale in support of the rejections and arguments in rebuttal set forth in the examiner's answer.

We reverse.

We begin with the rejection of claims 1-11 under 35 U.S.C. § 112, first paragraph. The test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter, rather than the presence or absence of literal support in the specification for the claim language. See Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1116-17 (Fed. Cir. 1991) and In re Kaslow, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983). "Precisely how close the original description must come to comply with the description requirement of section 112 must be determined on a case-by-case basis." Eiselstein v. Frank, 52 F.3d 1035, 1039, 34 USPQ2d 1467, 1470 (Fed. Cir. 1995) (quoting Vas-Cath, 935 F.2d at 1561, 19 USPQ2d at 1116).

The examiner asserts (answer, page 4) that "[t]he limitations 'within a single direction' and 'predetermined optimum velocity' cannot be found within the original specification nor is it seen how the device would be limited to operation only in a single direction." Appellants' position (brief, page 5) is that with respect to the limitation, "within a single direction," belt 10 is defined in the specification as traveling in the direction indicated by arrow 12, and in the art, photoreceptive members generally travel in only one direction. With respect to the limitation "predetermined optimum velocity," appellants assert that the language has previously been deleted from the claims. From our review of the originally filed specification, we find basis for the claim language "within a single direction." The specification states (page 5) that the belt 10 rotates in the direction of the arrow 12 (Figure 5). We find nothing in the specification to indicate or suggest that the belt can operate in any direction other than the direction indicated by arrow 12. From the disclosed operation of the system and the location of the paper feed downstream from the reproducing stations, and upstream from the corona generating units 52 and

53 and the cleaning station 56, we are in agreement with appellants that the belt as disclosed moves in a single direction. As to the language "predetermined optimum velocity," from our review of the claims, we are in agreement with appellants that the language objected to by the examiner is not present in the claims before us on appeal. Accordingly, the rejection of claims 1-11 under 35 U.S.C. § 112, first paragraph, is reversed.

We turn next to the rejection of claims 1-5 under 35 U.S.C. § 102(b) as anticipated by Yoshida. Anticipation is a question of fact. In re King, 801 F.2d 1324, 1326, 231 USPQ 136, 138 (Fed. Cir. 1986). A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. Verdegaal Bros. Inc. v. Union Oil Co., 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir.), cert. denied, 484 U.S. 827 (1987).

The examiner's position (answer, pages 4-5) is that "[i]t is not seen where maintaining a precise velocity presents structure over Yoshida et al." and that "the limitations to

the single direction and optimum velocity are considered new matter and cannot be found within the specification."

Appellants assert (brief, page 6) that Yoshida is directed to "controlling a motion of a driven member in a first direction and then reversing the movement to return the member to the initial position." Appellants additionally assert (id.) that in Yoshida, "[t]here is no disclosure pertaining to avoiding disturbances to the motion of the door due to motor torque." We find that in Yoshida (col. 2, lines 32-34), the motor driven component, i.e., the door, is moved between open and closed positions. As stated by Yoshida, "forward and reverse rotation of the motor M will provide an opening and closing of the door 5." Accordingly, we find that the limitation "in a single direction" (emphasis added) is not met by Yoshida.

We further find that Yoshida is silent as to preventing motor torque disturbances from affecting the velocity of the driven component. Yoshida discloses (col. 1, lines 18-39) that in the prior art, a revolution sensor was mounted on the shaft of a door drive motor to generate signals indicating the number of revolutions of the motor. However, the problem with

this arrangement was that occasional slip between the motor and the driven belt caused an error between the sensed door position and the actual door position, resulting in either premature stopping of the door or a collision between the door and the wall. Yoshida's invention (Figures 1 and 6; and col. 1, line 63 through col. 2, line 2) includes driving means (belt) 4 coupled to the motor M, motion sensing means 10 generating pulses having a pulse repetition rate in proportion to the velocity of the belt, door position detecting means 23 for counting the pulses to obtain the current door position, and "control means responsive to the obtained current door position for controlling the operation of said motor" (underlining added). Operation of the main control of Yoshida (col. 6, lines 12-66) is as follows. When sensor A detects the approach of a person to the door, a signal R_1 is generated. State sequencer 24 then generates signal R_4 to door position counter 23 and generates door opening signal R_2 to speed controller 9. This generates high speed command signal H to speed control 9 so that the motor M will operate at a high speed. Upon movement of drive belt 4, photo transistors generate first and second trains of pulses. Speed

detector 11 determines that the door is moving and supplies direction signal R to put the door position counter 23 in a countdown mode. Responsively, counter 23 counts down the pulses to obtain the current position of the door. When the current position of the door coincides with a predetermined deceleration point, a low speed command signal L is sent to the speed control 9. This causes motor M and door 5 to decelerate to a low speed. When the door reaches a fully open position, the door pulse interval monitor 29 detects a decreased interval between the pulses due to decreased door speed, and signals state sequencer 24 to generate a stop command ST to speed control 9, stopping the motor M. Yoshida further discloses (Figure 2 and col. 2, lines 53-58) that "tacho generator 7" is coupled to a rotational axis of the motor M and generates a voltage that will increase and decrease as the motor M runs at higher and lower speeds. Speed control 9 (col. 2, lines 66-68) receives output voltage V_1 from rectifier and ripple circuit 8 (which includes tacho generator 7) at junction 50, which is also connected to voltage V_H or V_L. The motor is thus controlled to selectively run at a high speed set by the voltage V_H or at a low speed

set by the voltage V_L, and is braked by activation of stop switch 20 in response to stop signal ST so that door 5 will move at high or low speed.

It is clear from the above teachings of Yoshida that door 5 moves at a high speed V_H, and when the door approaches the wall, the speed of the motor M and door 5 are set to a low speed V_L. We are in agreement with appellants that Yoshida only sets a high or low speed for the motor and door, and does not relate to preventing motor torque disturbances from affecting the velocity of the door. Yoshida generates motor control signals to control the speed of belt 4, which is directly connected to door 5. However, there is no suggestion in Yoshida that the motor control signals prevent motor torque disturbances from affecting the velocity of the belt and door.

The examiner tries to avoid the limitation by asserting that "[i]t is not seen where maintaining a precise velocity presents structure over Yoshida et al." However, we find that claim 1 specifically recites a "controller" responsive to the first and second signals "for generating a motor control signal." The language "to prevent motor torque disturbances

from affecting the velocity of the driven component" is functional in nature. However, specific structure is claimed for carrying out the function of preventing motor torque disturbances from affecting the velocity of the driven component. This claim limitation simply cannot be ignored.

The examiner further asserts (answer, pages 6-7)

> It can be seen that torque disturbances are present in the instant invention. It however, cannot be seen where the generated "motor control signal prevents motor torque disturbances from effecting [sic] the velocity of the driven component". . . . It cannot be found where the "control signal prevents motor torque disturbances". No torque measurements are seen within the specification description nor any means to prevent them.

The point raised by the examiner appears to be more directed to issues of enablement and/or indefiniteness than anticipation. However, in order to clarify the record, we shall address this issue raised by the examiner. We direct the examiner's attention to the specification (pages 10 and 11) which recite that

> there is a problem with the periodic higher frequency of the motor torque disturbance and its harmonics. This is true because even though the circumference of a roll turning at 3 hertz, for example, may be only a few degrees out of phase for rotation with respect to the image pitch, resulting

> in very little registration error, the 8 hertz, 16 hertz, and higher frequency disturbances produced by the motor will be much more out of phase, resulting in a larger registration error. These errors are illustrated graphically in Figure 1. Using the shaded area corresponding to registration error under the lowest frequency pulse as a reference of 1, the mid frequency error would be 3.7, and the high frequency error would be 4.9.
>
> Due to the phase problem, the magnitude of the disturbances must be made as small as possible at higher frequencies. One way of reducing certain of these disturbances is to feed back the motor velocity in addition to the surface velocity.

In addition, the examiner's attention is directed to the description of Figures 4A and 4B (specification, page 12) which discloses that

> Figure 4A illustrates a torque response curve utilizing a photoreceptor drive system without the velocity control system of the invention herein . . . . Figure 4B illustrates the torque response curve utilizing the dual feedback system. It can be seen that there is a two to three time improvement of the torque disturbance at the 8 hertz and 16 hertz response points. The 8 and 16 hz. frequencies are indications of motor torque error frequencies.

From this disclosure of appellants, we find that the language "to prevent motor torque disturbances from affecting the velocity of the driven component" to be clearly defined and supported by the disclosure.

From all of the above, we conclude that Yoshida does not anticipate claim 1 as advanced by the examiner. Claims 2-4 depend from claim 1. Claim 5 contains similar language as claim 1 with respect to the prevention of motor torque disturbances. Accordingly, the rejection of claims 1-5 under 35 U.S.C. § 102(b) is reversed.

We turn next to the rejection of claims 6-11 under 35 U.S.C. § 103 as unpatentable over Yoshida. Independent claim 6 contains essentially identical language as claim 1 with respect to preventing motor torque disturbances. We therefore reverse this rejection for the same reasons advanced with respect to claims 1-5, supra. Accordingly, the rejection of claims 6-11 under 35 U.S.C. § 103 is reversed.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1-11 under 35 U.S.C. § 112, first paragraph is reversed. The examiner's decision to reject claims 1-5 under 35 U.S.C. § 102(b) is reversed. The examiner's decision to reject claims 6-11 under 35 U.S.C. § 103 is reversed.

REVERSED

KENNETH W. HAIRSTON)
Administrative Patent Judge)
)
)
)

	) BOARD OF PATENT
LEE E. BARRETT	) APPEALS
Administrative Patent Judge	) AND
	) INTERFERENCES
	)
	)
	)
STUART S. LEVY	)
Administrative Patent Judge	)

SSL/kis

KEVIN R. KEPNER
XEROX SQUARE 20A
ROCHESTER, NY 14644