

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT LITTLE

Appeal No. 2006-3119
Application No. 10/157,581

ON BRIEF

Before THOMAS, JERRY SMITH, and MACDONALD, Administrative Patent Judges.
JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the Examiner's rejection of claims 1-26 and 35-41. Claims 27-34 were withdrawn from consideration [Brief, page 1].

The disclosed invention pertains to a system for coupling a master plate to a tool plate in a robotic arm. The system includes a first connecting unit including a piston moveable along a longitudinal axis. The piston includes a multifaceted contact surface comprising (1) a tapered locking surface; (2) an initial actuating surface having an angle with respect to the axis not greater than the angle of the tapered locking surface; and (3) a failsafe surface interposed between the tapered locking surface and the initial actuating surface. The piston is translated downwardly along its axis. Upon contact with rolling members, downward force exerted by the piston is translated into a generally horizontal, outwardly-oriented force that urges the rolling members to associated retention chambers, thus locking the respective plates together. The failsafe surface ensures that the plates remain locked together in the event of a failure to maintain downward force on the piston.

Representative claim 1 is reproduced as follows:

1. A robotic tool coupling piston moveable along a longitudinal axis, comprising:
 - a tapered locking surface;
 - an initial actuating surface having an angle with respect to said axis not greater than the angle of said tapered locking surface; and
 - a failsafe surface interposed between said tapered locking surface and said initial actuating surface.

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The Examiner relies on the following reference:

Nakamura et al. (Nakamura) 5,211,501 May 18, 1993

The following rejection is on appeal before us:

Claims 1-26 and 35-41 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Nakamura.

Rather than repeat the arguments of Appellant or the Examiner, we make reference to the Briefs and the Answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejection advanced by the Examiner and the evidence of anticipation relied upon by the Examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, the Appellant's arguments set forth in the Briefs along with the Examiner's rationale in support of the rejection and arguments in rebuttal set forth in the Examiner's Answer.

It is our view, after consideration of the record before us, that the disclosure of Nakamura does not fully meet the invention as set forth in the claims on appeal. Accordingly, we reverse.

Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. RCA Corp. v. Applied Digital Data Systems, Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984); W.L. Gore and Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1554, 220 USPQ 303, 313 (Fed. Cir. 1983). Only those arguments actually made by Appellant have been considered in this decision. Arguments which Appellant could have made but chose not to make in the briefs have not been considered and are deemed to be waived [see 37 CFR § 41.37(c)(1)(vii)(2004)].

The Examiner has indicated how the claimed invention is deemed to be fully met by the disclosure of Nakamura [Answer, pages 3-7]. Regarding independent claim 1, Appellant argues that the claim is not anticipated because, among other things, the claimed “initial actuating surface” does not correspond to surface 16e or 16d¹ in Nakamura as the Examiner contends. Rather, the initial actuating surface corresponds to Nakamura’s surface 16g [Brief, pages 10, 11, and 13; Reply Brief, pages 3 and 4]. In this regard, Appellant notes that the initial actuating surface as claimed is the first surface to contact the ball member to move it outwardly [Brief, page 11]. Surface 16d,

¹ In the Brief, Appellant’s arguments with respect to the “initial actuating surface” limitation were limited to surface 16e of Nakamura as corresponding to the claimed initial actuating surface. See Brief, page 10 (noting that the Examiner indicated surface 16e of Nakamura was the initial actuating surface) [Brief, page 10]. The Examiner, however, indicates in the Answer that surface 16d of Nakamura corresponds to the initial actuating surface [see Answer, pages 3, 9, and 11]. In the Reply Brief, Appellant’s arguments are based on the Examiner’s position in the Answer that surface 16d corresponds to the initial actuating surface [see e.g., Reply Brief, pages 3 and 4]. We therefore presume that the Examiner intended surface 16d to correspond to the

however, does not contact the ball member [Reply Brief, pages 3 and 4]. Appellant contends that even if it did, surface 16d cannot function as an initial actuating surface because, among other things, such a surface must be angled to exert a horizontal component of force on the ball member responsive to downward piston movement [id.].

The Examiner argues that Appellant's arguments are not commensurate with the claim language since the claims do not recite which direction the initial actuating surface acts. According to the Examiner, since the piston can move in either of two directions, it has "two initial directions" and therefore surface 16d is an initial actuating surface with respect to one of those directions [Answer, page 9]. Appellant responds that there is only one actuating direction in Nakamura – into the tool module – since that is only direction that actuates the ball members outwardly as the piston advances [Reply Brief, page 3].

Appellant also argues that the claimed "tapered locking surface" cannot correspond to Nakamura's surface 16g as the examiner alleges, but instead corresponds to surface 16e [Brief, pages 12 and 13]. Appellant notes that the tapered locking surface of the claimed invention presses the rolling member against the angled surface 42 to generate a force to lock the master and tool units together. In Nakamura, the surface that accomplishes this locking function is surface 16e – not 16g [brief, page 12; Reply Brief, page 5].

initial actuating surface.

We will not sustain the Examiner's rejection of independent claim 1. Although we agree with the Examiner that Nakamura discloses (1) a tapered locking surface, (2) an initial actuating surface, and (3) a failsafe surface, we disagree with the Examiner regarding which surfaces reasonably correspond to the claimed surfaces.

First, we agree with Appellant that the tapered cone part 16e – not tapered part 16g – is the only surface in Fig. 2 of Nakamura that can reasonably correspond to a tapered locking surface as claimed. According to Nakamura, due to the respective angles of inclination of the surfaces 16e and 16g, the tapered cone part 16e imparts a wedging effect and maintains a locked state against sudden movement of the robot arm [Nakamura, col. 3, line 67 – col. 4, line 13 and col. 4, lines 53-56; emphasis added]. Nakamura further notes that the tapered part 16g has a relatively large inclination angle that displaces the ball 12 outwardly upon contact with the piston as it lowers [Nakamura, col. 4, lines 35-47].

Because tapered part 16g initially contacts the ball member during piston movement to actuate the ball members outwardly, tapered part 16g is the only surface that reasonably corresponds to the claimed initial actuating surface. In our view, tapered part 16g is simply incapable of performing a locking function in Nakamura's arrangement. Rather, such a locking function can only be performed by tapered cone part 16e.

We agree with the Examiner, however, that surface 16f is a failsafe surface.²

Specifically, Nakamura states that “once the ball 12 contacts the cylindrical surface...16f... connected to the underside of...tapered cone part 16e..., the force of raising the piston 16 by the ball 12 is rendered ineffective such that the piston 16 stops raising and spontaneous separation of the assembly is restricted” [Nakamura, col. 5, lines 9-15; emphasis added].³

Although Nakamura’s failsafe surface 16f is interposed between the tapered locking surface 16e and the initial actuating surface 16g as claimed, the reference still does not disclose that the initial actuating surface has an angle with respect to the piston’s longitudinal axis that is not greater than the angle of the tapered locking surface. In fact, Nakamura discloses just the opposite: the angle of the initial actuating surface 16g with respect to the piston’s longitudinal axis is considerably greater than the angle of the tapered locking surface 16e [see Nakamura, Fig. 2].

We realize that to avoid anticipation, apparatus claims must be distinguished from the prior art in terms of structure rather than function. In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). Thus, even if a prior art structure is used for a different purpose, it will nevertheless anticipate the claim if it expressly or inherently contains all claimed structural features and is capable of performing the intended function. See id. We find, however, that except for failsafe surface 16f, the surfaces identified by the Examiner in Nakamura are simply incapable of performing the recited functions. We therefore decline to adopt the Examiner’s interpretation of Nakamura.

For at least these reasons, Nakamura does not disclose each and every limitation of independent claim 1. Accordingly, we will not sustain the Examiner's anticipation rejection of that claim or independent claim 15 which recites commensurate limitations. Likewise, we will not sustain the Examiner's rejection of dependent claims 2-14 and 16-26.

Regarding independent claim 35, the Examiner contends that (1) surface 16e corresponds to the claimed step surface, (2) surface 16g corresponds to the claimed tapered locking surface, and (3) a vertical "contact surface" is disposed therebetween as claimed [Answer, page 6]. Appellant first argues that because Nakamura's surface 16e is inclined with respect to the longitudinal axis, it is not equivalent to the claimed step surface [Brief, page 16]. Appellant also reiterates that Nakamura's surface 16g is not a tapered locking surface. Rather, surface 16e performs the claimed locking function [Reply Brief, page 8].

We will not sustain the Examiner's rejection of independent claim 35. As we indicated previously, Nakamura's surface 16e -- not surface 16g -- corresponds to the tapered locking surface.⁴ Therefore, surface 16e cannot also correspond to the claimed step surface for purposes of meeting the claim limitations since two distinct surfaces are claimed.⁵ To the extent that surface 16d constitutes a step surface, the claimed limitations are still not met since Nakamura does not disclose a contact surface with an angle less than or equal to the angle of the tapered locking surface disposed between the step surface and tapered locking surface as claimed.

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For at least these reasons, Nakamura does not disclose each and every limitation of independent claim 35. Accordingly, we will not sustain the Examiner's anticipation rejection of that claim. Likewise, we will not sustain the Examiner's rejection of dependent claims 36-41.

In summary, we have not sustained the Examiner's rejection with respect to any of the claims on appeal. Therefore, the decision of the Examiner rejecting claims 1-26 and 35-41 is reversed.

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REVERSED

JAMES D. THOMAS Administrative Patent Judge)))))))))		
JERRY SMITH Administrative Patent Judge)) APPEALS AND) <td>) INTERFERENCES)<td>)</td></td>) INTERFERENCES) <td>)</td>)
ALLEN R. MACDONALD Administrative Patent Judge))		

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