UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HANNA MARIA SMOLAREK

Appeal 2006-2838
Application 10/257,576
Technology Center 3600

Decided: February 23, 2007

Before MURRIEL E. CRAWFORD, JENNIFER D. BAHR, and LINDA E. HORNER, *Administrative Patent Judges*.

HORNER, Administrative Patent Judge.

DECISION ON APPEAL

STATEMENT OF THE CASE

The Appellant appeals the Examiner's final rejection of claims 39-54, 57, 60-70, and 73-80, and 82[1] under 35 U.S.C. § 134 (2002). We have jurisdiction under 35 U.S.C. § 6(b) (2002).

SUMMARY OF DECISION

We AFFIRM-IN-PART.

THE INVENTION

The Appellant invented a washer and threaded fastener assembly for securing a work piece in position (Specification 1: 4-5). The assembly opposes unintentional loosening or unthreading, and allows for proper fastener preloading (Specification 1: 6-9). Claims 39 and 63, reproduced below, are representative of the subject matter on appeal.

39. A spring action joint having at least two parts comprising,

a threaded part having a body with two opposed sides and a circular series of ramp structures on at least one of the two opposed sides, and

[1] Claims 1-38 are canceled, and claims 55, 56, 58, 59, and 72 are objected to as being dependent on a rejected base claim. Although claims 71 and 81 are listed in both the Appellant's Brief (Br. 2) and the Final Office Action (p. 1) as being rejected, the Examiner has not provided any statutory basis for the rejection of these claims in the Final Office Action or Examiner's Answer. As such, we find that these claims have not been finally rejected and thus are not before us for review.

a first washer having a body with two opposed sides, an outer periphery, a central aperture, and a circular series of ramp structures in the form of ratchet teeth on at least one of the two opposed sides of the first washer, the body of the washer being resiliently deformable at least up to when it is subjected to a joint preloading force created by tightening the joint up to a preloaded state.

63. A tool that can engage a plurality of spring action joints according to claim 39, so that the plurality of spring action joints can be torqued simultaneously.

THE REJECTIONS

The Examiner relies upon the following as evidence of unpatentability:

Durbin	US 612,490	Oct. 18, 1898
McCoy	US 910,712	Jan. 26, 1909
Thompson	US 1,159,131	Nov. 2, 1915
Walton	US 5,222,849	Jun. 29, 1993
Junkers	US 5,934,853	Aug. 10, 1999

The following rejections are before us for review.

1. Claims 39, 40, 45, 47, 49, 51-53, 61, 62, 66, 67, 69, 75-79, and 82 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Thompson.
2. Claims 75-79 and 82 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Durbin.
3. Claims 41-44, 46, 48, 50, 60, 64, 65, 68, 70, 73, 74, and 80 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Thompson and McCoy.
4. Claims 54 and 57 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Thompson and Walton.

5. Claim 60 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Thompson, McCoy, and Walton.
6. Claim 63 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Thompson and Junkers.
7. Claim 64 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Thompson, McCoy, and Junkers.

FIRST ISSUE

The Appellant contends claims 39, 40, 45, 47, 49, 51-53, 61, 62, 66, 67, 69, 75-79, and 82 are not anticipated by Thompson, and claims 41-44, 46, 48, 50, 54, 57, 60, 63, 64, 65, 68, 70, 73, 74, and 80 are not rendered obvious by Thompson in combination with other prior art references, because Thompson fails to teach or suggest a washer that is resiliently deformable (Brief 8-14). The Examiner contends Thompson discloses that element 10 is a "spring washer," and therefore it must have elastic properties (Answer 10). The Examiner further contends that Thompson's washer 10 will elastically deform as it move towards the nut 4 when the teeth 13 of the nut 4 interact with the teeth 12 of the washer 10 (Answer 10-11). The issue before us is whether the Appellant has shown that the Examiner erred in finding that Thompson teaches or suggests a washer that is resiliently deformable at least up to when it is subjected to a joint preloading force created by tightening the joint up to a preloaded state.

FINDINGS OF FACT

We find the following facts by a preponderance of the evidence:

Thompson discloses an apparatus for effectively locking a nut upon a bolt to prevent the accidental disassociation of the nut and bolt (Thompson, p. 1, ll. 9-11).

Thompson's apparatus includes a rectangular plate 5 made of spring material with beveled edges 6 that engage a work piece 2 (Thompson, p. 1, ll. 59-66).

Thompson also discloses a "spring ring or washer member" 10 having its inner face formed with lugs 11 (Thompson, p. 1, ll. 82-84).

Thompson's lugs 11 are adapted to be received within pockets 9 in rectangular plate 5 (Thompson, p. 1, ll. 84-85).

The inner face of nut 4 has teeth 14 which ratchet over teeth 12 on the outer face of Thompson's washer 10, when the nut 4 is screwed on a threaded shank of a bolt 3 (Thompson, p. 1, ll. 85-98).

As teeth 14 ratchet over teeth 13, the beveled edges 6 of plate 5 are forced tightly against the angular walls of the work piece 2, which causes the central portion of plate 5 to bulge outwardly, thereby forcing washer 10 toward the nut to bind the teeth 13 of the washer 10 and teeth 14 of the nut 4 (Thompson, p. 1, ll. 98-107).

The movement of Thompson's washer 10 toward the nut 4 is a translational movement along the shank of bolt 3.

Thompson's description does not indicate that the washer member 10 bulges towards the nut 4 along with the bulging rectangular plate 5. If the washer member

10 were to bulge towards the nut, then the teeth 13 on the washer would not properly engage the teeth 14 on the nut.

Claims 63 and 64 recite a tool that can engage a plurality of spring action joints according to claims 39 and 41, respectively, so that the plurality of spring action joints can be torqued simultaneously.

Neither claim 39 nor 41 describes a particular configuration for the outer peripheries of the claimed threaded part or of the claimed washers.

The specification describes, "The fasteners are depicted with double-hex configuration on their periphery 213, 493, although hexagonal and other tool engaging shapes are equally possible" (Specification, as amended, p. 22).

Junkers discloses a tool 7 that simultaneously provides torque to a plurality of joints 4, 6 (Junkers, Figure 5 and col. 3, ll. 3-10).

The joints of Junkers include gears 6 and the tool 7 has a plurality of teeth 8 corresponding to the teeth of the gears 6 (Junkers, col. 2, ll. 42-43).

The tool disclosed in Junkers is capable of engaging a plurality of spring action joints, such as those recited in claims 39 and 41.

PRINCIPLES OF LAW

"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. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 827 (1987).

ANALYSIS

Although Thompson describes element 10 as a "spring ring or washer member," in practice, the flat washer member 10 shown in Thompson is not elastically deformable as the nut 4 is tightened on the bolt 3. Instead, when the nut 4 is tightened on the bolt 3, Thompson's rectangular plate 5, formed of a spring material, deforms as it bulges outwardly. This deformation causes the washer member 10 to move along a longitudinal axis of the bolt 3 toward the nut 4 so that the ratchet teeth 13 and 14 engage one another. Contrary to the Examiner's reading of Thompson (Answer 11), we do not find Thompson's description to indicate that the washer member 10 bulges towards the nut 4 along with the bulging rectangular plate 5. If the washer member 10 were to bulge towards the nut, as suggested by the Examiner, then the teeth 13 on the washer would not properly engage the teeth 14 on the nut. As such, Thompson does not disclose a washer that is resiliently deformable when it is subjected to a joint preloading force. Accordingly, claims 39 and 75, and their respective dependent claims 40, 45, 47, 49, 51-53, 61, 62, 66, 67, 69, 76-79, and 82, are not anticipated by Thompson.

The Examiner did not rely upon McCoy or Walton for the teaching of a washer that is resiliently deformable. Further, we find that neither of these references cures the deficiency of Thompson. Accordingly, claims 41-44, 46, 48, 50, 60, 64, 65, 68, 70, 73, 74, and 80 are not rendered obvious by Thompson in combination with McCoy. Further, claims 54 and 57 are not rendered obvious by

Thompson in combination with Walton, and claim 60 is not rendered obvious by Thompson in combination with McCoy and Walton.

Claims 63 and 64 recite a tool that can engage a plurality of spring action joints according to claims 39 and 41, respectively, so that the plurality of spring action joints can be torqued simultaneously. We interpret these claims as independent claims requiring only a tool capable of engaging a plurality of spring action joints according to claims 39 and 41 to apply simultaneous torque to the joints. Neither claim 39 nor 41 recites a particular configuration for the outer peripheries of the claimed threaded part or of the claimed washers. The specification does not limit the shape of the outer periphery of the fasteners. As such, any tool capable of applying torque to the spring action joint of claims 39 and 41 would anticipate claims 63 and 64.

Junkers discloses a tool 7 that simultaneously provides torque to a plurality of joints 4, 6 (Junkers, Figure 5 and col. 3, ll. 3-10). The joints of Junkers include gears 6 and the tool 7 has a plurality of teeth 8 corresponding to the teeth of the gears 6 (Junkers, col. 2, ll. 42-43). Thus, the tool disclosed in Junkers is capable of engaging a plurality of spring action joints, such as those recited in claims 39 and 41. Accordingly, claims 63 and 64 are anticipated by Junkers. Since anticipation is the epitome of obviousness, we sustain the Examiner's rejection of claims 63 and 64 under 35 U.S.C. § 103(a). *See In re Pearson*, 494 F.2d 1399, 1402, 181 USPQ 641, 644 (CCPA 1974); and *In re Fracalossi*, 681 F.2d 792, 794, 215 USQPQ 569, 571 (CCPA 1982).

SECOND ISSUE

The Appellant contends claims 75-79 and 82 are not anticipated by Durbin, because Durbin discloses a washer with pawls instead of ratchet teeth (Brief 34-37). The Examiner contends that Durbin's pawls constitute the claimed ratchet teeth (Answer 15). The issue before us is whether the Appellant has shown that the Examiner erred in finding that Durbin anticipates claims 75-79 and 82 under 35 U.S.C. § 102(b). More particularly, the issue before us is whether the Appellant has shown that the Examiner erred in finding that Durbin discloses a washer having ratchet teeth on at least one side.

FINDINGS OF FACT

We find the following facts by a preponderance of the evidence:

Claim 75 requires that one of the two opposed sides of the washer have ratchet teeth.

A ratchet generally refers to "[a] wheel, usually toothed, operating with a catch or a pawl so as to rotate in only a single direction." McGraw-Hill Dictionary of Scientific and Technical Terms, 1653 (5th ed. 1994) (Attachment 1).

A pawl generally refers to "[t]he driving link or holding link of a ratchet mechanism [that] permits motion in one direction only." McGraw-Hill Dictionary of Scientific and Technical Terms, 1459 (5th ed. 1994) (Attachment 2).

It is clear that persons skilled in the art recognize a mechanical difference between ratchet teeth, disposed on a wheel or other component of a ratchet

mechanism, and a pawl, which catches the ratchet teeth to permit motion in one direction only.

Durbin discloses a nut-and-bolt lock whereby the nut is prevented from unscrewing on the bolt (Durbin, p. 1, ll. 11-14).

Durbin discloses that the nut-and-bolt lock includes a washer 4, which is constructed of thin sheet spring metal (Durbin, p. 1, ll. 34-35).

Durbin discloses that the washer 4 has pawls 5 that are constructed by cutting radial-shaped slits in the face of the washer and then slightly turning the free end outwardly (Durbin, p. 1, ll. 35-39).

The nut 7 of Durbin's nut-and-bolt lock has ratchet teeth 10 provided on its flange portion 9 (Durbin, p. 1, ll. 44-46).

When the nut 7 is screwed on the bolt, the ratchet teeth 10 are brought into engagement with the pawls 5 on the washer 4 to lock the device (Durbin, p. 1, ll. 53-57).

Durbin discloses pawls on the washer. Durbin does not disclose ratchet teeth on the washer.

PRINCIPLES OF LAW

"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. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 827 (1987).

We determine the scope of the claims in patent applications "not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction 'in light of the specification as it would be interpreted by one of ordinary skill in the art.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316, 75 USPQ2d 1321, 1329 (Fed. Cir. 2005) (en banc) (*quoting In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364, 70 USPQ2d 1827, 1830 (Fed. Cir. 2004)).

ANALYSIS

Claim 75 requires that the washer have ratchet teeth on at least one opposed side. Although pawls are conventionally a component of a ratchet mechanism, those skilled in the art would not consider the pawls 5 on Durbin's washer to be the claimed "ratchet teeth" because pawls, rather than being teeth themselves, are considered in the art to be a portion of the ratchet mechanism, i.e., a "link" or "catch," that engages the teeth and permits motion in one direction only. As such, Durbin does not disclose a washer with ratchet teeth. Accordingly, claim 75, and its dependent claims 76-79 and 82, are not anticipated by Thompson.

CONCLUSIONS OF LAW

We conclude that the Appellant has shown that the Examiner erred in rejecting claims 39, 40, 45, 47, 49, 51-53, 61, 62, 66, 67, 69, 75-79, and 82 under 35 U.S.C. § 102(b) as anticipated by Thompson. We further concluded that the Appellant has shown that the Examiner erred in rejecting claims 41-44, 46, 48, 50, 60, 64, 65, 68, 70, 73, 74, and 80 under 35 U.S.C. § 103(a) as being unpatentable over Thompson and McCoy, erred in rejecting claims 54 and 57 under 35 U.S.C.

§ 103(a) as being unpatentable over Thompson and Walton, and erred in rejecting claim 60 under 35 U.S.C. § 103(a) as being unpatentable over Thompson, McCoy, and Walton. We further conclude that the Appellant has shown that the Examiner erred in rejecting claims 75-79 and 82 under 35 U.S.C. § 102(b) as being anticipated by Durbin. We also conclude that the Appellant failed to show that the Examiner erred in rejecting claims 63 and 64 under 35 U.S.C. § 103(a) as unpatentable over Thompson and Junkers.

DECISION

The decision of the Examiner to reject:

- claims 39, 40, 45, 47, 49, 51-53, 61, 62, 66, 67, 69, 75-79, and 82 under 35 U.S.C. § 102(b) as anticipated by Thompson;
- claims 41-44, 46, 48, 50, 60, 64, 65, 68, 70, 73, 74, and 80 under 35 U.S.C. § 103(a) as being unpatentable over Thompson and McCoy; and
- claims 54 and 57 under 35 U.S.C. § 103(a) as being unpatentable over Thompson and Walton; and
- claim 60 under 35 U.S.C. § 103(a) as being unpatentable over Thompson, McCoy, and Walton; and
- claims 75-79 and 82 under 35 U.S.C. § 102(b) as being anticipated by Durbin

is not sustained.

The decision of the Examiner to reject claims 63 and 64 under 35 U.S.C. § 103(a) as unpatentable over Thompson and Junkers is sustained.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

MURRIEL E. CRAWFORD Administrative Patent Judge	)	
JENNIFER D. BAHR Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
LINDA E. HORNER Administrative Patent Judge	)	

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