UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DENNIS J. HICKEY

Appeal 2008-0308
Application 10/332,147
Technology Center 2800

Decided: March 26, 2008

Before JOSEPH F. RUGGIERO, ANITA PELLMAN GROSS, and MAHSHID D. SAADAT, *Administrative Patent Judges*.

SAADAT, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is a decision on appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1-6, 8, 10, and 11. Claims 12 and 13 have been objected to as being dependent on a rejected claim but otherwise allowable if rewritten in independent form. We have jurisdiction under 35 U.S.C. § 6(b).

Appellant's invention relates to proximity sensing devices incorporated in a projectile, for example within the fuse of an artillery shell or a mortar (Spec. 1). According to Appellant, an antenna component of a proximity sensing device is substantially immobilized within the encasement portions in order to reduce the effect of vibration on the antenna's components (Spec. 1-2). An understanding of the invention can be derived from a reading of independent claim 1 and dependent claim 10, which are reproduced as follows:

> 1. A proximity sensing device comprising an antenna unit, said antenna unit comprising:
>
> two substantially longitudinal dipole antennas; and
>
> interior and exterior encasement portions, encasing at least one of the two antennas along a substantial part of the at least one antenna between said interior encasement portion and said exterior encasement portion, said encasement portions adapted to substantially immobilise the at least one antenna, and the exterior encasement portion permitting the transmission of electro-magnetic radiation therethrough.
>
> 10. A fuze comprising a proximity sensing device according to claim 1.

The Examiner relies on the following prior art references:

Hartley	US 3,903,523	Sep. 2, 1975
Rodal	US 5,521,610	May 28, 1996

The rejections as presented by the Examiner are as follows:

Claims 1-6 and 8 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Rodal.

Claims 10 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Rodal and Hartley.

Rather than repeat the arguments here, we make reference to the Brief (filed Nov. 2, 2006) and the Answer (mailed Dec. 26, 2006) for the respective positions of Appellant and the Examiner.

We affirm.

ISSUES

1. Under 35 U.S.C § 102(b), with respect to the appealed claims 1-6 and 8, does Rodal anticipate the claimed subject matter by teaching all of the claimed limitations?
2. Under 35 U.S.C § 103(a), with respect to the appealed claims 10 and 11, would one of ordinarily skilled in the art have found it obvious to modify Rodal with Hartley to render the claimed invention unpatentable?

PRINCIPLES OF LAW

1. Anticipation

"A rejection for anticipation under section 102 requires that each and every limitation of the claimed invention be disclosed in a single prior art reference." *See In re Paulsen*, 30 F.3d 1475, 1478-79 (Fed. Cir. 1994).

Anticipation of a "claim requires a finding that the claim at issue 'reads' on a prior art reference". *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1346 (Fed. Cir. 1999) (quoting *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 781 (Fed. Cir. 1985)).

2. Obviousness

"The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art." *See In re Young*, 927 F.2d 588, 591 (Fed. Cir. 1991), quoting *In re Keller*, 642 F.2d 413, 425 (CCPA 1981) and *In re Kahn*, 441 F.3d 977, 987-88 (Fed. Cir. 2006).

The Examiner can satisfy this burden by showing "some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness". *KSR Int'l. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (*citing In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

ANALYSIS

1. 35 U.S.C. § 102 Rejection

Appellant disagrees with the Examiner's findings in Rodal with respect to characterizing the substrate 30, base 16, and assembly as the claimed interior portion of the encasement portion and dome 18 shown in Figure 2 as the exterior encasement portion (Br. 6). Appellant further argues that the Examiner has not shown how these two portions "provide substantial immobilization of the two antennas" (*id.*). Appellant specifically argues that since dome 18 is shown to be much larger than the antennas,

high "G" loads could cause the antennas to fly off their mounting substrate 30 in a direction toward dome 18 (*id.*).

The Examiner responds by referring to the position of antennas 24 and 25 on one side of substrate 30 as well as the placement of support 14, and asserts that soldering these components to base 16 anchors the connecting ends of the substrate to base 16 and provides immobilization for the antennas (Ans. 5). The Examiner further argues that dome 18 also provides for some degree of immobilization by enclosing the antennas and protecting them from mechanical impact (*id.*).

Based on our review of Rodal, we agree with the Examiner's characterization of the substrate 30, the assembly 14 and the soldered ends of the substrate in Rodal as the claimed interior encasement portion. Rodal describes antenna elements 24 and 25 as parts of flexible circuit 12 which, along with a set of four printed circuit anchors 26-29, are disposed on one side of substrate 30 (col. 2, ll. 62-65). Rodal further discloses that anchors 26-29 are soldered down to base 16 (col. 2, l. 65 – col. 3, l. 2) while assembly 14 functions as a center post to further secure the substrate to the base by soldering (col. 2, ll. 50-56). Therefore, the connections discussed above substantially immobilize antennas 24 and 25 by securely attaching the antennas to the base.

Appellant relies on *Webster's New Collegiate Dictionary* to define "encasement" as "the act or process of encasing: the state of being encased" (Br. 5) and contends that, because dome 18 is spaced apart from antennas 24 and 25, dome 18 does not "encase" an antenna between itself and an interior encasement portion (Br. 7). The Examiner argues that the antennas are encased along a substantial part of their length between dome 18, as the

claimed exterior portion, and the combination of substrate 30, base 16, and assembly 14, as the claimed interior portion (Ans. 5).

We disagree with Appellant that the claimed "encasing" necessarily requires the two portions be in contact with the antennas. Therefore, as argued by the Examiner, the arrangement disclosed by Rodal results in encasing and substantially immobilizing the antennas by the virtue of placing the antennas between substrate 30 and dome 18. As such, under the facts we have here and the arguments presented by the Examiner and Appellant, we find that the Examiner has established a prima facie case of anticipation. Accordingly, the 35 U.S.C. § 102(b) rejection of claim 1, as well as claims 2-6 and 8 dependent thereon, as anticipated by Rodal is sustained.

2. 35 U.S.C. § 103 Rejection

With respect to the rejection of claims 10 and 11, we note that the Examiner further relies on Hartley for teaching a set of dipole antennas used in a fuse comprising a proximity sensing device wherein the encasement portions comprise parts of the body of the fuse (Ans. 4-5). Appellant argues that the combination is neither supported by Hartley's disclosed "directional characteristics" of the missile (Br. 8), nor encouraged by suggestion in both references that there is no need to immobilize the antenna (Br. 9).

As discussed above with respect to claim 1, Rodal teaches substantially immobilizing the antennas by encasing the antennas between the interior and exterior portions. We also agree with the Examiner that Hartley discloses using microwave antennas in a proximity fuse (col. 1, ll. 38-46). Similarly, we find that the Examiner properly combined the applied prior art references to find that one of ordinary skill in the art faced with the

problems associated with the antenna position in a fuse, would have combined the arrangement of Rodal with Hartley's fuse to apply the directional characteristics of microwave antennas in finding the potential targets for detonating the explosive charges of the missile, as disclosed by Hartley (col. 1, ll. 42-53). Therefore, we sustain the 35 U.S.C. § 103(a) rejection of claims 10 and 11 over Rodal and Hartley.

CONCLUSION

On the record before us, Appellant has failed to show that the Examiner has erred in rejecting the claims. In view of our analysis above, we sustain the 35 U.S.C. § 102 rejection of claims 1-6 and 8 and the U.S.C. § 103 rejection of claims 10 and 11.

DECISION

The decision of the Examiner rejecting the claims is affirmed.

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

AFFIRMED

gvw

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