NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

(Reexamination No. 90/008,731)

IN RE PEPPERBALL TECHNOLOGIES, INC.

2011-1137

Appeal from the United States Patent and Trademark Office, Board of Patent Appeals and Interferences.

(Reexamination No. 90/008,728)

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2011-1138

Appeal from the United States Patent and Trademark Office, Board of Patent Appeals and Interferences.

Decided: March 7, 2012

FRANCO A. SERAFINI, Themis Law, of La Jolla, California, argued for appellant in both appeals. With him on the brief was DAVID M. FORTNER.

FRANCES M. LYNCH, Associate Solicitor, United States Patent and Trademark Office, of Alexandria, Virginia, argued for appellee in both appeals. With her on the brief were RAYMOND T. CHEN, Solicitor, and SCOTT C. WEIDENFELLER, Associate Solicitor.

Before RADER, *Chief Judge*, PLAGER, and DYK, *Circuit Judges*.

PER CURIAM.

PepperBall Technologies, Inc. ("PepperBall") appeals the decision of the Board of Patent Appeals and Interferences ("Board"), affirming the examiner's rejection of claims 1-25 of U.S. Patent No. 6,393,992 (filed Apr. 9, 1999) ("the '992 patent"). *Ex parte PepperBall Technologies, Inc.*, No. 2010-003789, 2010 WL 2638032 (B.P.A.I. June 30, 2010). PepperBall also appeals the Board's decision to affirm the examiner's rejection of claims 1-28 of U.S. Patent No. 7,194,960 (filed June 10, 2004) ("the '960 patent"). *Ex parte PepperBall Technologies, Inc.*, No. 2010-004091, 2010 WL 2638033 (B.P.A.I. June 30, 2010). This opinion resolves both appeals. Because the Board's fact findings are supported by substantial evidence, and because this court sees no legal error in the Board's decision, this court affirms.

I.

The '992 and '960 patents disclose a non-lethal projectile delivering an inhibiting substance to a living target for riot control or subduing a suspected criminal. The projectiles of the '992 patent are spherical and contain a

pepper-based, powdered inhibiting substance such as oleoresin capsicum. Oleoresin capsicum is derived from capsaicin, which is in the capsaicinoid family and extracted from plants in the capsicum genus (commonly known as chili peppers). The projectiles are frangible, rupturing upon impact and radially dispersing the powder proximate to the target (*e.g.*, a human) in a cloud. For optimal dispersion of the powered substance, the projectiles are filled greater than 50%, and preferably filled greater than 90%. Filling the projectiles 100%, however, will produce an undesirable clump instead of a cloud. Claims 1 and 22 are representative:

1. A system comprising:

> a generally spheroid frangible projectile to be impacted with a target where the frangible projectile is configured such that an ignitable substance is not used in launching the frangible projectile;
>
> the frangible projectile comprising a rigid frangible shell having a thickness and a volume formed within, wherein the rigid frangible shell ruptures upon impact with the target; and
>
> an inhibiting substance contained within the volume and occupying at least about 50% of the volume;
>
> wherein the inhibiting substance comprising a powdered inhibiting substance, wherein upon impact with the target the rigid frangible shell ruptures radially dispersing the powdered inhibiting substance proximate to the target into a cloud; and

> wherein the inhibiting substance comprises powdered oleoresin capsicum.

22. The system of claim 1, wherein a fill material contained within the volume comprising the powdered inhibiting substance occupies between 60% and 95% of the volume.

The '960 patent is a child of the '992 patent. There are two main differences in the '960 patent from its parent. First, the powdered inhibiting substance is nonivamide instead of oleoresin capsicum. Second, upon impact, the shell ruptures dispersing the powdered substance omnidirectionally instead of radially. Nonivamide is a synthetic capsaicinoid. Claims 1 and 11 are representative:

1. A system comprising:

> a frangible projectile to be impacted with a target where the frangible projectile is adapted to be launched such that a propellant gas acts directly on the frangible projectile to propel and launch the frangible projectile without an intermediary between the frangible projectile and the propellant gas and where an ignitable substance is not used in launching the frangible projectile;
>
> the frangible projectile comprising a rigid frangible shell having a thickness and a volume formed within, wherein the rigid frangible shell ruptures upon impact with the target; and
>
> a substance contained within the volume;

> wherein the substance comprises a powdered inhibiting substance, wherein upon impact with the target the rigid frangible shell ruptures, omnidirectionally dispersing the powdered inhibiting substance proximate to the target into a cloud; and
>
> wherein the powdered inhibiting substance comprises nonivamide.

11. The system of claim 8 wherein the rigid frangible shell further comprises at least one structurally weakening feature formed within the frangible shell wherein the weakening features aid in the rupturing of the projectile and in inducing the omnidirectional dispersion of the powdered inhibiting substance.

As issued, the '992 patent had 17 claims. During reexamination, PepperBall amended claims 1, 5, 7, 10, and 11-13, and added new claims 18-25. The '960 patent issued with 21 claims. During reexamination, PepperBall amended claims 1, 3, 4, and 8-11, and added new claims 22-28. The Board affirmed the examiner's decision to reject all claims of both patents as obvious and claims 5, 21, and 22 of the '992 patent and claims 4, 26, and 28 of the '960 patent for lack of written description. This court has jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A).

II.

Whether an invention would have been obvious is a legal question. *In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000). What a reference teaches and whether a person with ordinary skill in the art would have been motivated to combine the teachings of separate references

are questions of fact. *Id.*; *Para-Ordnance Mfg. v. SGS Imps. Int'l*, 73 F.3d 1085, 1088 (Fed. Cir. 1995). This court upholds the Board's fact findings supported by substantial evidence, 5 U.S.C. § 706, and reviews legal conclusions without deference, *Gartside*, 203 F.3d at 1315-16.

III.

The Board based its obviousness rejection on U.S. Patent No. 5,639,526 (filed Oct. 14, 1993) ("Kotsiopoulos") in view of U.S. Patent No. 3,951,070 (filed Dec. 6, 1973) ("Flatau"), U.S. Patent No. 5,018,450 (filed Apr. 25, 1991) ("Smith"), U.S. Patent No. 5,361,700 (filed Dec. 10, 1993) ("Carbone"), and U.S. Patent No. 5,821,450 (filed Mar. 31, 1997) ("Fedida"). *PepperBall*, 2010 WL 2638032, at *20.

First, there is substantial evidence to support the Board's fact findings on the teachings of the prior art. Flatau discloses a non-lethal "frangible" ring airfoil projectile that ruptures on impact to distribute a "payload" to the target. Flatau, at col.2 ll.19, 64; *PepperBall*, 2010 WL 2638032, at *10. The payload can be a liquid or powdered "incapacitating agent." Flatau, at col.7 l.22 and col.4 ll.15-18. The specification alleges the projectile is effective at both "point blank range" or "from a distance." Flatau, at col.2 ll.1-8; *PepperBall*, 2010 WL 2638032, at *16.

Smith discloses a paintball with two separately-sealed compartments. *PepperBall*, 2010 WL 2638032, at *13. Specifically, Smith claims a luminescent paintball for nighttime use. Smith, at col.1 ll.10-19. To prevent the two luminescent chemicals from mixing until the paintball impacts the target, Smith teaches a method of filling a paintball by fusing together two separate compartments. Smith, at col.1 ll.7-13.

Kotsiopoulos claims a paintball shell filled with a "coloring agent" (*e.g.*, paint) and that "readily fractures upon striking a victim with a greatly decreased risk of physical harm to the victim." Kotsiopoulos, at col.2 ll.58-61; *PepperBall*, 2010 WL 2638032, at *12. The specification discloses substituting the coloring agent with a variety of fill components, including tear gas. Kotsiopoulos, at col.5 ll.3-7 and col. 7 ll. 20-22; *PepperBall*, 2010 WL 2638032, at *12.

Carbone discloses a shotgun cartridge comprised of a ball held by a cup enveloped by a fan, which ejects a substance upon impact to a target. Carbone, at claims 1 and 5. The substance can be marking dyes, paints, or irritants such as pepper and tear gas. Carbone, at col.1 ll.8-10; *PepperBall*, 2010 WL 2638032, at *8.

Fedida discloses an irritant composition for use in projectiles and that includes at least one capsaicinoid, specifically a combination of piperidide and a capsaicinoid. Fedida, at col.5 ll. 35-38; *PepperBall*, 2010 WL 2638032, at *12. The specification discloses the composition in a wide range of forms, including powder. Fedida, at col.4; *PepperBall*, 2010 WL 2638032, at *13. The specification explains that the advantage of a powder is the ability to disperse a large surface or volume on the target. Fedida, at col.4 ll.40-43; *PepperBall*, 2010 WL 2638032, at *13. The specification identifies oleoresin capsicum as in the prior art. Fedida, at col.1 l.31.

Next, there is substantial evidence supporting the Board's finding that a person of ordinary skill in the art would have been motivated to substitute a well-known pepper-based irritant, such as oleoresin capsicum, for the tear gas irritant disclosed in the Kotsiopoulos projectile. The main difference in the PepperBall projectile from the prior art Kotsiopoulos projectile is the type of filling

agent. While Kotsiopoulos does not specifically mention filling a paintball with a powdered irritant, PepperBall admitted that tear gas could be a powder in a parent application to the patents at issue. *See* U.S. Patent No. 5,965,839 col.14 ll.28-29 (filed Nov. 18, 1996) ("7. The projectile of claim 1 wherein said powdered inhibiting substance includes tear gas."). Further, the prior art teaches pepper-based powdered equivalents to tear gas. *See, e.g.*, Fedida, at col.3 ll.7-10; *PepperBall*, 2010 WL 2638032, at *12.

While Kotsiopoulos only teaches how to fill a paintball with a liquid using an injection needle, the Board found that prior art such as Fedida taught incorporating powdered irritants into spherical projectiles. *PepperBall*, 2010 WL 2638032, at *13. The Board acknowledged that filling a paintball with powder would be "more than a trivial task." *Id.* at 14. Nevertheless, the Board found that the task could be accomplished by a person of ordinary skill in the art "with routine experimentation." *Id.*

The Board properly rejected PepperBall's argument that Fedida taught away from the claimed systems. *PepperBall*, 2010 WL 2638032, at *13. Though Fedida does focus on ignitable projectiles, the Board relied on Fedida for its teaching of a pepper-based powdered irritant as equivalent to prior art irritants in projectiles. Fedida does not criticize, discredit, or otherwise discourage use of such irritants in non-ignitable projectiles. *See In re Chapman*, 595 F.3d 1330, 1337 (Fed. Cir. 2010); *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009). Similarly, contrary to PepperBall's assertions, Flatau does not teach away from the claimed systems. PepperBall overstates Flatau's problems with tear gas grenades as reflecting all conventional (spherical) projectiles. Indeed, Flatau does not

reference spherical projectiles or problems with powdered irritants.

The differing fill levels recited in claim 22 of the '992 patent, however, is a closer question of obviousness. The Board found that Kotsiopoulos teaches a "weighting agent" could be added in a paintball to optimize flight. *PepperBall*, 2010 WL 2638032, at *14. The Board found that Kotsiopoulos' adding a weighting agent was similar to PepperBall's modifying the fill percentage. *Id.* Thus, the Board concluded that it would have been obvious to modify the fill levels in a projectile within the recited range in claim 22. *Id.*

This court in the first instance might not have reached the same conclusion as the Board on the similarity of PepperBall's differing fill levels and Kotsiopoulos' weighting agent. PepperBall's differing fill levels are for the purpose of optimizing the size of the cloud upon impact, while, in contrast, Kotsiopoulos' weighting agent is for the purpose of optimizing the flight of the projectile. Nevertheless, this court does find substantial evidence to support the Board's finding of obviousness, because the claimed range of 60% to 95% is so broad in this context that a person of ordinary skill in the art likely would have tried fill levels within this range during routine experimentation.

Though claims 1-12 and 14-25 in the '992 patent were rejected in view of the same four references, the Board rejected claim 13 in view of the additional prior art reference Smith. PepperBall has made no substantial arguments as to this claim or as to Smith in its appeal briefs. PepperBall has not met its burden to show there is no substantial evidence to support the Board's findings.

There is substantial evidence to support the Board's fact findings on the objective indicia of non-obviousness.

While the claimed systems may have been beneficial, the Board correctly found that others had previously solved the long-felt need for a non-lethal projectile. *PepperBall*, 2010 WL 2638032, at *18. While PepperBall argues the need addressed by its claimed systems is more specific (*i.e.*, a non-lethal, powdered irritant projectile with cloud dispersion and that can be launched from both close and far distances), PepperBall has not presented sufficient evidence of such a specific need nor that it was long-felt. *See Star Scientific, Inc. v. R.J. Reynolds Tobacco Co.*, 655 F.3d 1364, 1376 (Fed. Cir. 2011); *Eli Lilly & Co. v. Zenith Goldline Pharm., Inc.*, 471 F.3d 1369, 1380 (Fed. Cir. 2006).

The commercial success evidence proffered by PepperBall does not provide sufficient detail to overcome the *prima facie* showing here. That evidence lacks a sufficient nexus to the claimed invention. The $3 million in sales enjoyed by PepperBall covers not only projectiles but also launch platforms, training revenues and "accessories [like] carrying cases for the launchers, hoppers, high pressure air bottles, magazines, tactical slings, speed pod loaders and other projectiles for use in the launchers." *See Crocs, Inc. v. ITC*, 598 F.3d 1294, 1311 (Fed. Cir. 2010).

In conclusion, this court sees no error in the Board's conclusion that the proffered evidence of objective indicia is insufficient to overcome the *prima facie* case of obviousness here.

The discussion above applies to both the child and parent patents. Though on appeal PepperBall makes new arguments as to both patents, those arguments are waived and not discussed further in this opinion. By affirming on obviousness grounds, this court does not reach the written description rejections.

AFFIRMED.