

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 JOHN W. SUMMERFIELD

Appeal No. 2006-1946
Application No. 10/437,580
Technology Center 3700

ON BRIEF

Before OWENS, CRAWFORD and NAPPI, *Administrative Patent Judges*.
OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal is from a rejection of claims 1-5, 8, 10, 12-22, 24-29 and 31-34, which are all of the pending claims.

THE INVENTION

The appellant claims a puck having a thermochromic visualization agent, a method for forming the puck, and a method for playing a sporting activity using the puck. Claim 1 is illustrative:

A puck comprising a structural material in the general shape of a disk and a first thermochromic visualization agent associated with the disk, wherein at least a portion of the first thermochromic visualization agent is visually observable, wherein the puck is an ice hockey puck and wherein the first visualization agent has a different visual appearance at a temperature below about 59 degrees F than at room temperature.

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THE REFERENCES

Douglas	5,330,184	Jul. 19, 1994
Grupp et al. (Grupp)	5,484,205	Jan. 16, 1996
Small et al. (Small)	6,139,779	Oct. 31, 2000
Chinn et al. (Chinn)	6,146,293	Nov. 14, 2000
Kennedy, III	2003/0109329 A1	Jun. 12, 2003
		(filed Dec. 6, 2001)

THE REJECTIONS

The claims stand rejected under 35 U.S.C. § 103 as follows:

claims 1-3, 5, 10, 17-19, 21, 24-29 and 31-34 over Kennedy in view of Douglas; claims 4, 8, 20 and 22 over Kennedy in view of Douglas and Small; claims 12 and 13 over Kennedy in view of Douglas and Chinn; and claims 14-16 over Kennedy in view of Douglas and Grupp.

OPINION

We affirm the aforementioned rejections.

The appellant states that the claims stand or fall in five groups: 1) claims 1, 3-5, 8, 12, 17, 19, 21, 22, 24-29, 31 and 32;¹ 2) claims 2 and 18; 3) claims 10, 33 and 34; 4) claims 14-16; and 5) claim 20 (brief, pages 4-5). We therefore limit our discussion to claim 20 and one claim in each of the other groups, i.e., claims 1, 2, 10 and 14. The other

¹ The appellant omits claim 13 from the grouping of claims. We consider that claim to stand or fall with claim 1 from which it depends. Also, we note that although an additional reference (Chinn) is applied to claims 12 and 13, the appellant does not separately argue those claims.

claims in each group stand or fall with the claim we address

See 37 CFR § 41.37(c) (1) (vii) (2004).

Claim 1

Douglas discloses, in the background of the invention section (col. 1, lines 32-46):

Desirably, hockey pucks should exhibit the quality of being "dead" objects on the ice. That is, the pucks should have little or no bounce to them. Such bounciness is determined by the coefficient of restitution exhibited by the puck. The lower the coefficient of restitution, the less bounce the puck will have. Thus, the puck, upon hitting an object such as the ice ring wall, will drop to the ice rather than rebounding quickly from the wall.

Heretofore, hockey pucks have had to be frozen prior to a game in order to lower the coefficient of restitution. However, during the game, the pucks warm up and therefore, the coefficient of restitution increases, resulting in the same adverse properties which were initially eliminated with the freezing of the puck.

Douglas' invention is "a hockey puck which [due to the inventive rubber composition] acts like a 'dead' object and does not have to be frozen to have a low coefficient of restitution" (col. 2, lines 30-32).

Kennedy discloses a golf ball having an integral temperature sensor comprising "a stamp or mark that changes color at a predetermined temperature, allowing a golfer to determine the approximate temperature of a golf ball and hence its suitability for play" (¶ 0001). Kennedy teaches that "knowing the temperature of a golf ball is useful in that it allows a golfer

to determine when a golf ball is capable of delivering maximum performance when struck by a golf club". See *id.* The stamp or mark comprises a thermochromic material that "is capable of indicating whether the golf ball is above or below a predetermined temperature" (¶ 0012). Kennedy further teaches (¶¶ 0019-0020) :

The modulus of elasticity of a polymer varies with temperature. Generally, the higher the temperature within a given range, the higher the modulus of elasticity, and conversely, the lower the temperature, the lower the modulus of elasticity. Simply stated, as the temperature drops, golf balls become stiff and hence cannot be driven as far as when they are warm.

[0020] A golfer always strives for maximum performance from a golf ball. Maximum performance is often characterized by the length of a drive, with longer being better. In order to achieve maximum performance, a golf ball must be at an optimum temperature for playing. For practical purposes, this optimum temperature is generally from about 15 to about 35°C., although individual golfers may prefer temperatures above or below this range.

The appellant argues that "[d]ue to the peculiarities of golf ball construction, golf ball construction is effectively non-analogous art relative to construction of a hockey puck, which has completely difference [sic] performance requirements from a golf ball" (brief, page 10). The test of whether a reference is from an analogous art is first, whether it is within the field of the inventor's endeavor, and second, if it is not, whether it is reasonably pertinent to the particular problem with

which the inventor was involved. See *In re Wood*, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979). A reference is reasonably pertinent if, even though it may be in a different field of endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering the inventor's problem. See *In re Clay*, 966 F.2d 656, 659, 23 USPQ2d 1058, 1061 (Fed. Cir. 1992). Kennedy's disclosure that lowering a polymer's temperature reduces its modulus of elasticity, thereby stiffening it (¶ 0019), logically would have commended itself to the appellant's attention in considering the problem addressed by the appellant, i.e., visually indicating when a polymeric hockey puck has warmed to the point where the puck no longer has the desired level of stiffness. Kennedy, therefore, is analogous art.

The appellant argues that there would have been no motivation to combine Kennedy and Douglas because play would not be stopped if Douglas' hockey puck warms up during use (brief, page 11). Although play would not be stopped to replace a warmed puck, Kennedy would have fairly suggested, to one of ordinary skill in the art, replacing the puck with a frozen one when play is stopped for another reason, such as a foul, in order to maintain the optimum playing temperature of the puck being used

in the game.²

The appellant argues that a thermochromic agent would not provide a hockey puck with Douglas' desired proper performance over a wide temperature range (brief, page 11). That is correct.

However, Kennedy's disclosures that another small, polymeric object that is struck during play, i.e., a golf ball, must be at an optimum temperature for playing, and that lowering a polymer's temperature stiffens the polymer (¶¶ 0019-0020), would have fairly suggested, to one of ordinary skill in the art, the alternative approach of assuring that a hockey puck is within the temperature range for proper stiffness by placing Kennedy's thermochromic section on the hockey puck. Further evidence in support of the combination is the closeness of the upper suitable hockey puck temperature (below about 59°F) indicated by the appellant's claim 1, and the lower limit of Kennedy's optimum golf ball temperature range ("about 15 to about 35°C" [59 to 95°F] (¶ 0020)).

The appellant argues that Douglas' disclosure that when

² The appellant states that the "procedure of cold storage of the pucks is almost always the practice at the professional and college level of hockey" (specification, page 2, lines 2-3). The appellant does not state whether it was almost always the practice to replace warmed up pucks with frozen ones when play has been stopped.

pucks were painted to make them more visible, plastic coatings were too costly, dyes faded or caused the puck to warp, and other pucks became mushy and bounced unpredictably upon extensive use (col. 1, line 61 - col. 2, line 5), teaches away from applying Kennedy's thermochromic material to Douglas' hockey puck (brief, page 11). It is not apparent from the record whether Kennedy's disclosed thermochromic materials, i.e., cholesteric liquid crystals and leuco dye systems (¶ 0012), would fade or cause the effects of warping, mushiness, and unpredictable bounce set forth by Douglas. Regardless, Kennedy's thermochromic material is not a coating for the entire golf ball but, rather, is an indicia on a small part of the ball that tells whether the ball is at the optimum temperature for playing (¶ 0023; figures 1-4). Moreover, there is no indication that fading would make Kennedy's thermochromic material ineffective, and it does not reasonably appear that a coating on a small part of the golf ball would be expensive or would cause warping, mushiness or unpredictable bounce. Hence, the record supports the conclusion that one of ordinary skill in the art would have had been motivated to use Kennedy's thermochromic material on Douglas' hockey puck to indicate whether the puck is at the optimum playing temperature, and would have had a reasonable expectation of success in doing

so. Hence, contrary to the appellant's argument (brief, page 12) combining the disclosures of Douglas and Kennedy to arrive at the invention claimed in the appellant's claim 1 would have been *prima facie* obvious to one of ordinary skill in the art. See *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991); *In re O'Farrell*, 853 F.2d 894, 902, 7 USPQ2d 1673, 1680 (Fed. Cir. 1988).

Claim 2

The appellant argues that Douglas and Kennedy do not disclose or suggest incorporating a thermochromic agent into a structural material of a puck or any other sports object (brief, page 12). Kennedy discloses that "the thermochromic material can be incorporated on or in the surface of the cover layer" (¶ 0023). The thermochromic agent incorporated in the surface is incorporated into the structural material. Hence, we are not convinced of reversible error in the examiner's rejection of claim 2.

Claim 10

The appellant argues that Douglas and Kennedy do not disclose a thermochromic transition at a temperature below about 35°F (brief, page 12). Kennedy's disclosure that the thermochromic material indicates that the golf ball is at the

optimum temperature for playing (¶ 0020) would have fairly suggested, to one of ordinary skill in the art applying the thermochromic material to hockey pucks, the use of a thermochromic material having a transition temperature, e.g., 35°F, which indicates when a puck that has warmed during play needs to be replaced with a frozen puck to maintain the game puck at the optimum playing temperature. The appellant's disclosure indicates that such thermochromic materials were known in the art at the time of the appellant's invention (specification, page 5, line 26 - col. 6, line 8). We therefore are not convinced of reversible error in the examiner's rejection of claim 10.

Claim 14

Grupp discloses a temperature sensor having a plurality of distinct juxtaposed zones, each covered by a thermochromic material having a different transition temperature, so as to indicate temperature changes over a temperature range (col. 1, lines 5-10 and 55-57).

The appellant argues that Grupp is nonanalogous art because "[a] person of ordinary skill in the sports object art clearly does not look to the watch art for teachings on how to make a better sporting good" (brief, page 16). Grupp is not limited to the watch art but, rather, discloses a temperature indicator and

states that its use on a wristwatch is particularly interesting (col. 1, lines 44-64). Grupp's disclosures regarding using thermochromic materials to indicate when temperatures are in different zones logically would have commended itself to the appellant's attention in considering the particular problem with which the appellant was involved, i.e., use of thermochromic materials to indicate transition temperatures on a hockey puck. Consequently, Grupp is analogous art. See *Clay*, 966 F.2d at 659, 23 USPQ2d at 1061.

The appellant's only other argument with respect to Grupp is that it does not cure the deficiencies in Douglas and Kennedy (brief, page 16). As discussed above, such deficiencies do not exist.

For the above reasons we are not convinced of reversible error in the examiner's rejection of claim 14.

Claim 20

Small discloses applying a thermochromic pigment over a pigmented lacquer to provide a more visible thermochromic color change to fingernails and toenails than would be obtained if the thermochromic pigment were added to the pigmented lacquer layer (col. 13, lines 2-14).

The appellant argues that Douglas, Kennedy and Small do not

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describe an epoxy basecoat (brief, page 14). The examiner responds that the examiner has asserted that some lacquers were known in the art to be made of epoxies and that the appellant has not challenged that assertion (answer, page 9). Because the examiner's finding is reasonable and has not been challenged by the appellant, we accept it as fact. See *In re Kunzmann*, 326 F.2d 424, 425 n.3, 140 USPQ 235, 236 n.3 (CCPA 1964).

The appellant's only other argument with respect to Small is that it does not cure the deficiency in Douglas and Kennedy with respect to the motivation to apply a thermochromic material to a hockey puck (brief, page 14). As discussed above, that deficiency does not exist.

We therefore are not convinced of reversible error in the examiner's rejection of claim 20.

DECISION

The rejections under 35 U.S.C. § 103 of claims 1-3, 5, 10, 17-19, 21, 24-29 and 31-34 over Kennedy in view of Douglas, claims 4, 8, 20 and 22 over Kennedy in view of Douglas and Small, claims 12 and 13 over Kennedy in view of Douglas and Chinn, and claims 14-16 over Kennedy in view of Douglas and Grupp, are affirmed.

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

AFFIRMED

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TERRY J. OWENS)
Administrative Patent Judge)
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BOARD OF PATENT
MURRIEL E. CRAWFORD) APPEALS
Administrative Patent Judge) AND
) INTERFERENCES
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