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62068	7590	07/09/2020	EXAMINER	
HUNTSMAN INTERNATIONAL LLC LEGAL DEPARTMENT 10003 WOODLOCH FOREST DRIVE THE WOODLANDS, TX 77380			HEINCER, LIAM J	
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte CHRISTOPHER J. MORIARTY,
SACHCHIDA N. SINGH, and PAUL D. COLEMAN

Appeal 2019-004841
Application 15/067,233
Technology Center 1700

Before GEORGE C. BEST, MICHELLE N. ANKENBRAND, and
MERRELL C. CASHION, JR., *Administrative Patent Judges*.

CASHION, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant¹ appeals under 35 U.S.C. § 134(a) from a final rejection of claims 1–9 and 18–20. We have jurisdiction under 35 U.S.C. § 6.

We AFFIRM.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Huntsman International LLC. Br. 3.

The invention is generally directed to lignocellulosic composites.
Spec. 1. Claim 1 is illustrative of the subject matter on appeal and is reproduced below (formatting added):

1. An oriented strand board wood composite comprising two surface layers and a core layer disposed between the two surface layers, wherein

(A) the core layer is formed from an adhesive treated lignocellulosic mixture comprising: a plurality of lignocellulosic substrates coated with an adhesive system consisting of:

- (i) a polyfunctional isocyanate,
- (ii) a transition metal organometallic catalyst,
- (iii) a hydrophilic organic polyahl having oxyethylene segments that make up greater than 50% of the weight of the polyahl, and

(iv) a non-isocyanate reactive additive;

wherein Component (i) does not contain an isocyanate-group terminated prepolymer compound, and

(B) one or both of the surface layers are treated with either an isocyanate-based adhesive or a phenol formaldehyde based adhesive.

Appellant (*see generally* Br.) requests review of the Examiner's rejection of claims 1–9 and 18–20 under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Gallagher (US 4,100,328, issued July 11, 1978), Herold (US 4,551,517, issued November 5, 1985), and Moriarty (US 2004/0146654 A1, published July 29, 2004). Br. 8; Final Act. 2.

Appellant argues independent claim 1 and relies on these same arguments to address the rejection of all dependent claims. *See generally* Br. Accordingly, we select the independent claim 1 as representative of the subject matter claimed and decide the appeal as to the

ground of rejection before us for review based on the arguments Appellant makes in support of patentability of claim 1.

OPINION

After review of the respective positions that Appellant provides in the Appeal Brief and the Examiner provides in the Final Action and the Answer, we AFFIRM the Examiner's prior art rejections of claims 1–9 and 18–20 for the reasons the Examiner presents. We add the following for emphasis.

Claim 1

The Examiner finds that the combined teachings of Gallagher and Moriarty suggest an oriented strand board wood composite comprising two surface layers and a core layer disposed between the two surface layers that differs from the claimed invention in that the combined teachings do not teach forming the core layer with a polyurethane adhesive system that uses a transition metal organometallic catalyst. Final Act. 2–3. Appellant does not dispute the Examiner's specific findings based on these references. *See generally* Br. The Examiner finds that Herold teaches it was known to make wood products using a polyurethane binder comprising transition metal ligands, including iron acetyl acetonate (a group VIIIb metal), which meets the claimed transition metal catalyst, as curing agents for the binder. Final Act 2; Herold col. 7, l. 56–col. 8, l. 2, col. 8, ll. 46–50. The Examiner determines that it would have been obvious to a person having ordinary skill in the art to have used Herold's catalyst in Gallagher and Moriarty's combined composition in view of Herold's teachings. Final Act. 2–3.

Appellant argues that Gallagher does not teach the use of catalysts in the binder composition and, in fact, teaches away from their use. Br. 10–11.

Appellant argues that Gallagher addresses the prior art use of catalysts in mold release agents or coated on the mold surfaces to prevent the severe sticking of polyisocyanate adhesives to metal. Br. 11; Gallagher col. 1, ll. 45–52. Appellant also contends that Gallagher would not have used organometallic catalysts because they were not known by those skilled in the art as additives for the adhesive system used to form a core layer in an oriented strand board wood composite. Br. 10–11. Thus, Appellant asserts that, absent impermissible hindsight and in view of Gallagher’s teaching away, one skilled in the art would not have arrived at the claimed invention from the combined teachings of the prior art.

Appellant’s arguments do not identify error in the Examiner’s determination of obviousness. Appellant’s arguments attack Gallagher individually and, therefore, do not address adequately the rejection the Examiner presents. *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986); *In re Keller*, 642 F.2d 413, 425–426 (CCPA 1981) (“The test [for obviousness] is what the combined teachings of the references would have suggested to those of ordinary skill in the art.”).

We note that Gallagher seeks to eliminate a catalyst that is in mold release agents or coated on the mold surfaces to increase production of particle boards. Br. 11; Gallagher col. 5, ll. 18–36. That is, Gallagher seeks to eliminate a catalyst that is not part of the polyisocyanate/polyurethane binder composition (herein after referred to as an “external catalyst”) from the process of making a wood product. Gallagher does so by using the disclosed binder composition in an amount that is less than the amount of conventional adhesive when making a product. Gallagher col. 5, ll. 29–36.

Therefore, Gallagher's disclosure teaches it is the amount of the binder that dictates the need for applying an external catalyst to a mold.

Although Appellant contends that Gallagher teaches away from using catalysts in the binders (Br. 11), Appellant does not direct us to any portion of Gallagher that supports this contention. In fact, the noted portion of Gallagher associates the amount of adhesive as dictating whether an external catalyst is necessary to prevent undesirable adhesion to a mold and does not teach away from using a catalyst as part of the binder composition itself. Nor would this disclosure have discouraged a skilled artisan from using catalysts in the binder composition itself.

As the Examiner notes, Herold teaches that it is conventional to add an optional catalyst, such as an organometallic catalyst, to a polyurethane binder to make wood products. Ans. 6; *see* Herold col. 7, ll. 55–57, 65–68. The Examiner determines that it would have been obvious to one of ordinary skill in the art to incorporate Herold's catalyst into Gallagher's composition to speed up the curing of the binder. Ans. 6. This is consistent with Gallagher's objective of increasing wood product production. Gallagher col. 5, ll. 18–36. Thus, the Examiner has provided a reasonable basis why one skilled in the art would have arrived at the claimed invention from the combined teachings of the cited art. *In re O'Farrell*, 853 F.2d 894, 904 (Fed. Cir. 1988) ("For obviousness under § 103, all that is required is a reasonable expectation of success."). Appellant fails to explain adequately why one skilled in the art, using no more than ordinary creativity, would not have been capable of modifying Gallagher's binder composition so as to incorporate an organometallic catalyst as Herold teaches. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) ("A person of ordinary skill is also

a person of ordinary creativity, not an automaton.”); *see also In re Sovish*, 769 F.2d 738, 743 (Fed. Cir. 1985) (presuming skill on the part of one of ordinary skill in the art).

To overcome the Examiner’s case of obviousness, Appellant argues that Tables 1 and 2 in the Specification present data demonstrating that an oriented strand board comprising the inventive adhesive system and produced at lower press temperatures without an increase in residence time in the press has at least comparable, if not improved, physical and mechanical properties when compared to a state of the art oriented strand board. Br. 12–13 (citing Spec. 18:23–24 (Tables 1 and 2)).

When evidence of secondary considerations is submitted, we begin anew and evaluate the rebuttal evidence along with the evidence upon which the conclusion of obviousness was based. *In re Rinehart*, 531 F.2d 1048, 1052 (CCPA 1976). The burden of establishing unexpected results rests on the Appellant. Appellant may meet this burden by establishing that the difference between the claimed invention and the closest prior art was an unexpected difference. *See In re Klosak*, 455 F.2d 1077, 1080 (CCPA 1972). Appellant must establish the unexpected results with factual evidence; attorney statements are insufficient to establish unexpected results. *See In re Geisler*, 116 F.3d 1465, 1470–71 (Fed. Cir. 1997). Further, a showing of unexpected results with evidentiary support must be reasonably commensurate in scope with the degree of protection sought by the claims on appeal. *In re Grasselli*, 713 F.2d 731, 743 (Fed. Cir. 1983); *In re Clemens*, 622 F.2d 1029, 1035 (CCPA 1980).

We have considered Appellant’s evidence of unexpected results and agree with the Examiner’s analysis that the evidence is insufficient to show nonobviousness. Ans. 7–8.

As the Examiner notes (Ans. 7–8), it is not clear that Appellant has compared the claimed invention against the closest prior art (Gallagher). We also agree with the Examiner that Appellant does not explain why the single inventive adhesive of Tables 1 and 2 is representative of the broad scope of adhesives claimed. Ans. 8.

Thus, on this record, Appellant has not explained adequately why one of ordinary skill in the art would have found the evidence relied upon unexpected or why that evidence is reasonably commensurate in the scope with the claims.

Accordingly, we affirm the Examiner’s prior art rejection of claims 1–9 and 18–20 under 35 U.S.C. § 103(a) for the reasons the Examiner presents and the reasons we give above.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–9, 18–20	103(a)	Gallagher, Herold, Moriarty	1–9, 18–20	

TIME PERIOD

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