



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/512,663	07/30/2012	Dale Elton Bauman	MTC 56922.US	1058
45738	7590	11/15/2018	EXAMINER	
STINSON LEONARD STREET LLP (MTC) 7700 FORSYTH BOULEVARD, SUITE 1100 ST LOUIS, MO 63105			ZILBERING, ASSAF	
			ART UNIT	PAPER NUMBER
			1792	
			NOTIFICATION DATE	DELIVERY MODE
			11/15/2018	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

stl.uspatents@stinson.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DALE ELTON BAUMAN, GARY F. HARTNELL,
NICHOLAS J. NISSING, GARY J. KLOPF, and JOHN L. VICINI

Appeal 2017-009033
Application 13/512,663
Technology Center 1700

Before RAE LYNN P. GUEST, N. WHITNEY WILSON, and
MICHAEL G. McMANUS, *Administrative Patent Judges*.

GUEST, *Administrative Patent Judge*.

DECISION ON APPEAL

I. STATEMENT OF CASE

Appellants¹ appeal under 35 U.S.C. § 134(a) from the Examiner's Decision to reject claims 1–13 and 20 under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Hartnell,² in view of Rosenberg³ and Daniells.⁴ *See*

¹ Appellants identify Monsanto Technology LLC as the real party in interest. Appeal Brief 2, dated November 8, 2016 (“Br.”).

² US 2009/0202672 A1, published August 13, 2009, and naming Gary F. Hartnell as the inventor (“Hartnell”).

³ US 2004/0058003 A1, published March 25, 2004, and naming Moshe Rosenberg et al. as the inventors (“Rosenberg”).

⁴ Stephen Daniells, *Benefits of omega-3 fed cows passed onto consumers*, FEEDNAVIGATOR.COM (May 23, 2007, 14:06 GMT), <https://www.feed>

Examiner's Final Office Action, dated May 9, 2016 ("Final Act.");
Examiner's Answer, dated February 24, 2017 ("Ans."). We have
jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

Appellants' disclosure is related to an enhancement of desirable characteristics in ruminant animals and ruminant products, such as dairy and meat products, through the incorporation of beneficial fatty acids. In particular, the disclosure is directed to incorporating stearidonic acid ("SDA") and other omega-3 fatty acids, such as gamma linolenic acid ("GLA") into the feed of ruminant animals. Specification ("Spec.") ¶ 14.

Independent claim 1 is exemplary of the subject matter on appeal and is reproduced below (with paragraphing added for clarity):

1. A ruminant feed comprising:
SDA;
GLA; and,
additional feed components, wherein the ruminant feed comprises
at least about 0.05% by weight SDA and
at least about 0.03% by weight GLA,
wherein the ratio of SDA/GLA is at least about 1.3
and further comprises
a fatty acid protective agent selected from the group
consisting of an undegradable protein, a whey protein gel
complex, a protein coating material, and a combination thereof.

Br. 8 (Claim App'x).

Unless otherwise indicated, we adopt the Examiner's findings in the Answer as our own and add any additional findings of fact appearing below for emphasis.

navigator.com/Article/2007/05/24/Benefits-of-omega-3-fed-cows-passed-onto-consumers ("Daniells").

II. Discussion

Appellants present arguments only with respect to claim 1, and thus all the claims stand or fall with claim 1.

The Appellants argue that the art does not give a technical reason for using the claimed compounds of SDA and GLA at the concentrations recited in claim 1 of at least about 0.05% and at least about 0.03%, respectively, or the specifically recited ratio of SDA/GLA of at least about 1.3. Br. 5.

Appellants' argument is not persuasive. The Examiner finds that Hartnell discloses a feed composition that has at least 0.5% of SDA and at least about 0.3% of GLA wherein the range of SDA/GLA is about 1.3 to about 4.0. Ans. 8 (citing, e.g., Hartnell ¶ 93). Accordingly, Hartnell's disclosed range of concentration and ratio of the claimed compounds falls squarely within the ranges recited in claim 1.

Additionally, Appellants argue that there would be no reasonable expectation that feeding ruminant animals the SDA/GLA ratio taught by Hartnell would provide advantageous results because the feed of Hartnell is aquaculture feed. Br. 5.

Appellants' argument is not persuasive because it does not address the teachings of Daniells which explain the benefits of fatty acids, such as that taught by Hartnell, to beef and the consumer of the beef. Thus, we agree with the Examiner (Ans. 6) that Daniells explains why the skilled artisan would have reasonably expected benefits in giving ruminant animals the fatty acid feed concentrations taught by Hartnell.

Appellants also argue that the Examiner has not provided a reason why the aquaculture feed of Hartnell or the flaxseed of Daniells would have been combined with the composite gel of Rosenberg because the aquaculture

feed of Hartnell does not require protection from hydrogenation and the flaxseed feed of Daniells showed improved omega-3 fatty acid concentrations in the beef products using an enriched flaxseed, even without such protection from degradation. Br. 5.

The Examiner finds that Rosenberg teaches (1) that omega-3 fatty acids are subject to degradation in the rumen of ruminant animals and (2) using a whey protein composite gel to protect against biohydrogenation of omega-3 fatty acids and to increase the omega-3 fatty acids in the animal tissue and derived dairy products. Ans. 7 (citing, e.g., Rosenberg ¶¶ 5–6). The Examiner further finds that Rosenberg teaches unprotected unsaturated fatty acids lead to an increase in the content of undesirable saturated fatty acids in the animal tissue. Ans. 7. Further, we find that Rosenberg teaches that, without protection in the rumen, large amounts of polyunsaturated fats can have a toxic effect on rumen microbes which leads to reduced nutrient absorption from the feed. *See* Rosenberg ¶ 5.

Accordingly, we agree with the Examiner (Ans. 10–11, 12) that it would have been obvious to one skilled in the art to use the protection taught by Rosenberg when feeding an omega-3 fatty acid enriched diet, as taught by Hartnell, to ruminant animals, as taught by Daniells, in order to avoid degradation of the fatty acids in the rumen of such animals, and further to avoid the toxic effect when using larger amounts of omega-3 fatty acids. In doing so, the skilled artisan would expect increased amounts of omega-3 fatty acids in the beef and dairy products of such animals over that of animals given feed with omega-3 fatty acids without such protection, as taught by Rosenberg.

Appellants also argue that none of the references describe or demonstrate protection of SDA. Br. 6. Thus, Appellants argue that a person of ordinary skill in the art would not have had a reasonable expectation that protecting SDA from biohydrogenation in the cow's rumen would have successfully incorporated SDA into the beef as contended by the office. Br. 5. In particular, Appellants refer to “the variability of incorporation of various fatty acids into the tissues of animals as described in the studies of Scollan.”⁵ Br. 6.

The Examiner disagrees, finding that Rosenberg teaches successfully protecting polyunsaturated fatty acids, particularly omega-3 fatty acids, to increase the content of omega-3 unsaturated fatty acids in the beef and dairy products, and the feed art recognizes SDA as a known omega-3 polyunsaturated fatty acid. Ans. 13–14; *see, e.g.*, Hartnell ¶ 4. We agree with the Examiner that Rosenberg's teachings suggest that all polyunsaturated fatty acid, particularly omega-3 fatty acids, and thus including SDA, would break down in the rumen of ruminant animals and thus would have benefitted from the whey protein gel protection taught by

⁵ The Final Rejection and Answer mentions two additional references as further evidence: N.D. Scollan et al., *Biohydrogenation and digestion of long chain fatty acids in steers fed on different sources of lipid*, 136(3) J. OF AGRICULTURAL SCI. 345–55 (2001) (Abstract of record only) and N.D. Scollan et al., *Effects of including a ruminally protected lipid supplement in the diet on the fatty acid composition of beef muscle*, 90 BRITISH J. OF NUTRITION 709–16 (2003) (“Scollan”). The Examiner finds these references show “cows fed ruminally protected PUFAs [(polyunsaturated fatty acids)] provided higher tissue PUFA content than cows fed unprotected oil seeds (e.g., flaxseeds), due to the higher ruminal bio hydrogenation rate of the unprotected PUFAs in the flaxseeds.” Final Act. 6–7; Ans. 13. In other words, the teachings of Scollan appear to be cumulative of Rosenberg.

Rosenberg. Even if Scollan teaches variations in incorporation of particular fatty acids, which is not particularly well-explained by Appellants, Appellants have not shown error in the Examiner's analysis or explained why this fact would draw into question the teaching in Rosenberg of omega-3 fatty acid increase in beef and dairy products when feed added omega-3 fatty acids are protected in the rumen. While the skilled artisan may expect variation between the relative increases of particular fatty acids in beef and dairy products, increase of incorporation of protected SDA would nonetheless be expected as compared to unprotected SDA, as with all other polyunsaturated fatty acids, as taught by Rosenberg.

Accordingly, we sustain the Examiner's rejection of claim 1 and the remaining claims on appeal are similarly sustained.

III. CONCLUSION

On the record before us and for the reasons discussed above, we sustain the rejection of claims 1–13 and 20 under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Hartnell in view of Rosenberg and Daniells. Accordingly, we affirm the Examiner's decision to reject the claims on appeal.

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