



# 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.
13/954,285	07/30/2013	George Polson	LZA-44 (P1154US01)	7289
22827	7590	03/24/2020	EXAMINER	
DORITY & MANNING, P.A. POST OFFICE BOX 1449 GREENVILLE, SC 29602-1449			AHMED, HASAN SYED	
			ART UNIT	PAPER NUMBER
			1615	
			NOTIFICATION DATE	DELIVERY MODE
			03/24/2020	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):

USDOCKETING@DORITY-MANNING.COM

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

*Ex parte* GEORGE POLSON, JODY JOURDEN, DENISE B. TAYLOR,  
and YONGCHENG JI

---

Appeal 2019-000218  
Application 13/954,285  
Technology Center 1600

---

Before ULRIKE W. JENKS, TIMOTHY G. MAJORS, and  
MICHAEL A. VALEK, *Administrative Patent Judges*.

JENKS, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's decision to reject claims 1–6, 8, 9, 11, and 21. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

STATEMENT OF THE CASE

The Specification discloses that “[m]etal salts of pyrithiones are known in the art to have biocidal activity and have been widely used as

---

<sup>1</sup> We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as Arch Chemicals, Inc. Appeal Br. 1.

fungicides and bacteriocides.” Spec. ¶ 3. Examples of products that contain pyrithione include “personal care compositions, such as cosmetics, and antidandruff shampoos; material protection products, such as paints, adhesives, caulks and sealants; plastics and metal working fluids.” *Id.*

Claims 1–6, 8, 9, 11, and 21 are on appeal,<sup>2</sup> and can be found in the Claims Appendix of the Appeal Brief. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method for reducing discoloration of a zinc pyrithione-containing composition due to the presence of an iron ion, said method comprising:

adding a pyranone compound and an iron co-chelator to the zinc pyrithione-containing composition to complex iron ions introduced to the composition from impurities present in raw materials used to make the composition or from the processing equipment.

Appeal Br. 13 (Claims Appendix).

#### REFERENCES

The prior art relied upon by Examiner is:

Name	Reference	Date
French et al. (“French”)	US 4,935,061	June 19, 1990
Hall et al. (“Hall”)	US 2012/0015986 A1	Jan. 19, 2012

#### REJECTION

Appellant requests review of the rejection of claims 1–6, 8, 9, 11, and 21 under 35 U.S.C. § 103(a) over Hall in view of French. Appellant does not argue any claim separately from claim 1, so claims 2–6, 8, 9, 11, and 21 stand or fall with claim 1. 37 C.F.R. § 41.37(c)(1)(iv).

---

<sup>2</sup> Appellant states that claims 12, 14–20, and 22 are withdrawn from consideration, and that claims 7, 10, and 13 are canceled. Appeal Br. 2.

The issue is whether the preponderance of evidence of record supports Examiner's conclusion that based on the combination of Hall and French one of ordinary skill in the art would have had a reason to add a pyranone compound and an iron co-chelator to a composition containing zinc pyrithione in order to prevent discoloration of the product.

*Findings of Fact*

- FF1. Hall teaches a method of preventing discoloration in pyrithione-containing materials such as paints, coatings, adhesives or textiles, as well as personal care compositions like shampoos. Hall Abstract, ¶¶ 8–9.
- FF2. Hall teaches using pyrithione or salts thereof as an antimicrobial. Hall ¶ 26. Hall teaches that “[s]uitable salts of pyrithione include, for example, sodium pyrithione, zinc pyrithione and copper pyrithione.” *Id.* Hall exemplifies the use of zinc pyrithione. *Id.* ¶ 47 (Table 1).
- FF3. Hall teaches that an effective antimicrobial amount of pyrithione or salts thereof is “from about 500 ppm to about 5,000 ppm by weight.” Hall ¶ 26.
- FF4. Hall teaches the addition of a “discoloration inhibitor” such as “zinc salt, sodium salt, or copper salt of dehydroacetic acid, the zinc salt of dehydroacetic acid being most preferred.” Hall ¶ 27. Hall teaches that an effective amount of discoloration inhibitor is “from about 0.05% to about 5% by weight (about 500 to about 50,000 ppm).” *Id.* ¶ 33.
- FF5. French teaches compositions to reduce discoloration of paints, and paint bases that contain pyrithione, French 1:9–10. Sodium pyrithione is a biocide that is also used in metalworking fluids, lubricants, cosmetics, and toiletries. *Id.* at 1:11–16.

FF6. French explains that “[i]n the presence of ferric iron, sodium pyrrithione-containing compositions tend to turn to blue even though the ferric iron is present in mere trace amounts. This blue discoloration is undesirable for aesthetic reasons.” French 1:24–27. French teaches that in addition to the undesirable discoloration the interaction between pyrrithione and the ferric ion that forms the blue precipitate is that “[t]he precipitate reduces the amount of available pyrrithione throughout the composition, thereby diminishing the biocidal protection thereof.” *Id.* at 1:33–34.

FF7. French teaches that the inclusion of an alkali metal or alkaline earth metal salt of 1-hydroxyethane-1,1-diphosphonic acid (HEDP) with a sodium pyrrithione containing composition prevents discoloration. French 1:50–56.

### *Analysis*

Examiner relies on Hall for teaching zinc-pyrrithione salts in conjunction with a discoloration inhibitor such as dehydroacetic acid (DHA) (equivalent to 3-acetyl-6-methyl-2H-pyranone). Final Act. 2. Examiner acknowledges that Hall “does not teach adding an iron co-chelator to the pyrrithione-containing composition.” *Id.* at 3. Examiner relies on French for teaching that the addition of “HEDP at a concentration of between about 33 and about 75 weight percent of the composition (see [French] col. 2, lines 37-39) and EDTA at a concentration of between 50 and 500 ppm (see [French] col. 2, lines 52-56)” prevents discoloration in pyrrithione containing paints that have been spiked with ferric ions. *Id.* at 4. Examiner concludes that based on the combined teachings of Hall and French,

[o]ne of ordinary skill in the art at the time the invention was

made would have been motivated to make such a composition because it provides the benefit of preventing discoloration without inhibiting the antimicrobial action of the pyrithione or salt thereof, as explained by Hall (see above). Additionally, one of ordinary skill in the art at the time the invention was made would have been motivated to add a co-chelator to the composition disclosed by Hall because of the resulting reduced discoloration of the pyrithione-containing composition because of the superior ferric ion binding capability of the HEDP metal salts disclosed, as explained by French (see above).

*Id.* at 4–5.

We adopt the Examiner’s findings and reasoning regarding the scope and content of the prior art, and responses to Appellant’s arguments as set forth in the Final Action and Answer. Final Act. 2–8; Ans. 2–8; FF1–FF7. We find that the Examiner has provided evidence to support a prima facie case of obviousness based on Hall and French. If we do not mention specific argument below, we have adopted the Examiner’s responses with respect to those arguments. We provide the following additional comment to arguments set forth in the Appeal Brief.

Appellant contends there is no reason to modify Hall because “there is no indication within Hall that the discoloration disclosed therein is due to the presence of ferric ion.” Appeal Br. 5; Reply Br. 2–4. Additionally, Appellant contends that Hall “only requires the use of dehydroacetic acid or a salt thereof and explicitly refrains from the use of any other discoloration inhibitor(s).” Appeal Br. 10.

We are not persuaded by Appellant’s contention that Hall teaches away from the addition of additional discoloration inhibitors. It is only in reference to a preferred embodiment that Hall teaches that “the discoloration inhibitor consists essentially of dehydroacetic acid or a salt thereof, without

any additional discoloration inhibitors.” Hall ¶ 31, *see* ¶ 15. It is well settled that “in a section 103 inquiry, ‘the fact that a specific [embodiment] is taught to be preferred is not controlling, since all disclosures of the prior art, including unpreferred embodiments, must be considered.’” *Merck & Co. v. Biocraft Labs. Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (quoting *In re Lamberti*, 545 F.2d 747, 750 (CCPA 1976)); *see also In re Mills*, 470 F.2d 649, 651 (CCPA 1972) (“All the disclosures in a reference must be evaluated, including nonpreferred embodiments, and a reference is not limited to the disclosure of specific working examples.” (Citations omitted)). Hall is focused on the zinc salt of dehydroacetic acid as a preferred discoloration inhibitor, however, the sodium salt or copper salt of dehydroacetic acid are also contemplated. Hall ¶ 27. Thus, Hall is not limited to zinc dehydroacetic acid as the only discoloration inhibitor.

Appellant’s reliance on the decision of the Patent Trial and Appeal Board in *Rinkevich* is also unpersuasive. *See* Appeal Br. 6–8 (citing *Ex parte Rinkevich*, Appeal No. 2007-001317, mailed May 29, 2007 (“*Rinkevich*”)). We agree with Examiner that the facts in *Rinkevich* are not analogous to the facts in present appeal because, unlike the prior art at issue there (*see Rinkevich* at 9), Hall does not actually solve the problem of discoloration. Specifically, Examiner finds that Hall’s disclosure does not indicate that the problem of discoloration in pyrithione containing compositions is solved. Ans. 7–8. Hall Table 1, reproduced below, shows the use of zinc pyrithione in conjunction with zinc dehydroacetic acid (DHA) reduces, but does not eliminate discoloration.

TABLE 1

Sample	Color Rating of Clear FPVC		Color Rating of Filled FPVC	
	0 hours	1,000 hours	0 hours	1,000 hours
Control (Untreated)	0	0	0	3
Zinc Pyrithione (2,500 ppm)	0	3	0	4
Zinc Pyrithione/ Zinc DHA (1,250 ppm each)	0	1	0	2

The color scale is from 0 to 4:  
 0 - no color change  
 1 - slightly yellowish  
 2 - yellowish brown  
 3 - brown  
 4 - dark brown

Table 1 shows that stabilized zinc pyrithione is still capable of discoloring both clear and filled plastic exposed to weathering conditions. Hall ¶ 48. Based on this disclosure, we agree with Examiner that “the DHA pyranone compound of Hall reduces discoloration of pyrithione containing compositions, it does not eliminate discoloration of pyrithione containing compositions.” Ans. 6. Compare zinc pyrithione with zinc pyrithione/zinc DHA in the table of Hall reproduced above, the table shows that the addition of zinc DHA does not eliminate the discoloration. *See id.* Because Hall does not teach that zinc-DHA completely eliminates discoloration of the products, we agree with Examiner’s finding that one of ordinary skill in the art would still be motivated to improve Hall’s compositions. *Id.* at 7–8.

We are also not persuaded by Appellant’s contention that Hall’s disclosure is limited to “preventing discoloration of pyrithione-containing materials due to weathering.” Reply Br. 2–4. It is true Hall tested discoloration in products under weathering conditions, such as UV exposure, however, Hall clearly teaches that the method of incorporating zinc-DHA

can be equally applied to compositions that are not exposed to the weather. *See* Hall, Abstract (“The method is likewise suited for preventing discoloration of other pyrithione-containing materials such as personal care compositions like shampoos”); FF1. Because the method can be equally applied to prevent discoloration of personal care products such as shampoo we are not persuaded by Appellant’s contention that the discoloration is limited to weathering conditions. Examiner acknowledges that “Hall is silent as to why pyrithione containing compositions undergo discoloration.” Ans. 4. Examiner finds that Hall, nevertheless teaches that dehydroacetic acid (DHA) (i.e., the pyranone compound) stabilizes pyrithione and its salts. *Id.* (citing Hall ¶¶ 29–30).

Furthermore, Examiner finds that “both Hall and French are directed to reduced discoloration of pyrithione containing compositions” and it is the additive effect of multiple agents to prevent discoloration that motivates that combination. Final Act. 6. “It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition which is to be used for the very same purpose. . . . [T]he idea of combining them flows logically from their having been individually taught in the prior art.” *In re Kerkhoven*, 626 F.2d 846, 850 (CCPA 1980). We agree with Examiner’s position that is not necessary to understand the underlying mechanism of action of the discoloration inhibitor for one of ordinary skill in the art to be motivated to combine two compositions each of which is taught in the prior art to be used for the very same purpose, in this case to reduce discoloration pyrithione-containing compositions. *See* Final Act. 8.

Having considered all of Appellant's arguments and having found them to be unpersuasive, we affirm the Examiner's rejection of claim 1 as described above in conjunction with the reasons of record. Claims 2–6, 8, 9, 11, and 21 fall with claim 1.

#### DECISION SUMMARY

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1–6, 8, 9, 11, 21	103	Hall, French	1–6, 8, 9, 11, 21	

#### TIME PERIOD FOR RESPONSE

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

AFFIRMED