

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

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Ex parte JEAN-MICHEL STURLA,  
JEAN-LUC BREMENSON, FRANCOIS LE BOURHIS,  
and ARNAUD VILBERT

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Appeal No. 2004-2322  
Application No. 09/385,412

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HEARD: January 25, 2005

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Before ELLIS, ADAMS and GRIMES, Administrative Patent Judges.

GRIMES, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-29, all of the claims remaining. Claim 1 is representative and reads as follows:

1. An aerosol device comprising:
  - (a) a container containing a composition formed of a fluid and at least one propellant, and
  - (b) means for distributing the composition,  
wherein:
    - (i) the composition comprises, in a cosmetically acceptable medium, at least one polycondensate comprising at least one sequence chosen from polyurethanes and polyureas, and

an organic solvent, wherein the weight ratio of the propellant to the organic solvent is greater than or equal to 1.5:1; and

(ii) the device is suitable for giving an initial flow rate of aerosol composition of less than or equal to 0.75 gram per second,

wherein said at least one polycondensate is formed by an arrangement of blocks, this arrangement being obtained from:

(1) at least one compound which contains at least two active hydrogen atoms per molecule;

(2) at least one diol containing at least one functional group chosen from acid radicals and salts thereof; and

(3) at least one isocyanate chosen from di- and polyisocyanates.

The examiner relies on the following references:

Mougin et al. (Mougin)	5,643,581	Jul. 01, 1997
Dunne et al. (Dunne)	5,125,546	Jun. 30, 1992

Claims 1-29 stand rejected under 35 U.S.C. § 103 as obvious in view of Mougin and Dunne.

We affirm.

#### Background

“Hair products for shaping and/or maintaining the hairstyle which are the most common on the cosmetics market are spray compositions comprising a solution . . . and one or more materials, generally polymer resins (also known as fixing materials), the function of which is to form welds between the hairs. . . . The solution can be packaged, for example, in a suitable aerosol container placed under pressure using a propellant. The construction and operation of such aerosol containers is well known to those skilled in the art.” Specification, page 1.

### Discussion

The claims stand or fall together. Appeal Brief, page 3. We will consider claim 1 as representative of the claims on appeal; claims 2-29 will stand or fall with claim 1. See 37 CFR § 1.192(c)(7) (now 37 CFR § 41.37(c)(1)(vii)).

Claim 1 is directed to an aerosol device comprising a container, containing a composition and a propellant, and a means for distributing the composition (“a distribution valve controlled by a distribution head, which itself can comprise a nozzle”; specification, page 11). Claim 1 specifies that the composition contained in the claimed device comprises a polycondensate that contains a polyurethane or polyurea and “is formed by an arrangement of blocks, this arrangement being obtained from:

- (1) at least one compound which contains at least two active hydrogen atoms per molecule;
- (2) at least one diol containing at least one functional group chosen from acid radicals and salts thereof; and
- (3) at least one isocyanate chosen from di- and polyisocyanates.”

Claim 1 also requires a minimum weight ratio of propellant to organic solvent and requires the device to be “suitable for giving an initial flow rate of aerosol composition of less than or equal to 0.75 gram per second.”

The examiner rejected the claims as obvious in view of Mougín and Dunne. Mougín discloses the polycondensate defined in instant claim 1. That is, Mougín discloses a polycondensate that comprises “blocks of polyurethane and/or polyurea.” Column 4, line 4. The polycondensate is prepared by a two-stage process. Column 3, lines 7-24. In the first stage, a polysiloxane is reacted with a diisocyanate. See column 3, lines 35-58. The polysiloxane preferably comprises two amine (–NH–) groups, the

hydrogen atoms of which reasonably appear to be “active hydrogen atoms,” since they are free to take part in chemical reactions. Thus, the product of Mougín’s first-stage reaction is obtained from a compound which contains at least two active hydrogen atoms per molecule (i.e., polysiloxane) and at least one diisocyanate.

In Mougín’s second-stage reaction, the polysiloxane-isocyanate reaction products of the first stage are coupled together into longer polycondensates via a coupling agent that reacts with the terminal isocyanate groups. See column 3, line 59 to column 4, line 16. Mougín teaches that the coupling groups can be diols, diamines, or alcoholamines, in which the –OH and/or –NH<sub>2</sub> groups are attached to a radical (represented by “B”). Mougín also teaches that

[a]ccording to a [ ] highly preferred aspect of the invention the coupling agents (that is to say, in fact, the radical B) carry chemically anionizable or cationizable groups, that is to say groups which, respectively, give anionic groups when subjected to the action of a base (this is the case, for example, with carboxylic groups) and give cationic groups when subjected to the action of an acid (for example in the case of a tertiary amine).

Column 4, lines 17-24. See also column 6, lines 16-38 (stating that diols containing “a carboxylic acid anion (–COO<sup>–</sup>)” are “particularly suitable within the scope of the present invention”). Thus, Mougín teaches that a preferred polycondensate is one in which the polysiloxane-isocyanate units are coupled via a diol containing a carboxylic acid radical.

Mougín also teaches that the polycondensates produced via the two-stage process are useful in “the field of hair care products (hair washing, care or beauty), where the compositions according to the invention, in particular in the form of aerosols, of mousse, of shampoos, of after-shampoos, of styling or treating lotions or gels, of shaping or sculpting or setting lacquers or lotions, make it possible to give the hair

sheen, softness, ease of styling . . . , better feel and durability.” Column 10, lines 34-45 (emphasis added). Mougin discloses exemplary “setting spray[s]” in which a composition comprising the polycondensate is packaged in a pump bottle or “in a sprayer which can be recharged with compressed air.” Column 18, line 54 to column 19, line 14. The compositions were found to “impart[ ] good behaviour to the hairstyle.” Column 19, line 13.

As the examiner conceded, Mougin does not disclose the aerosol container defined by instant claim 1. However, the examiner cited Dunne as teaching such a container. The examiner characterized Dunne as teaching “an aerosol container containing a propellant gas and having an initial flow rate under 0.6 g/s and 0.35 mm nozzle diameter, which produce ‘a fine foam and good atomization’.” Examiner’s Answer, page 3. Appellants do not dispute this characterization of the secondary reference, and we agree with the examiner that the aerosol container disclosed by Dunne suggests the limitations recited in claim 1. For example, Dunne teaches that the device provides “initial product flow rates of under 0.6 g/s” for conventional hair sprays (column 16, lines 10-12).

Dunne also discloses that the ratio of propellant to product (and therefore also propellant to organic solvent) were recognized as result-affecting variables. See column 16, lines 1-5 (“The passage sizes are dependent on the physical properties of the liquid product . . . , the initial fill ratio of product volume to total container volume, and the initial container fill pressure.”). See also column 10, lines 11-32:

The form and characteristics of the final spray at the exit orifice are found to remain essentially constant throughout the discharge of the liquid product. This results from . . . ensuring that the residual pressure . . . is

still sufficiently high to produce at least substantially choked flow through the intermediate restrictor . . . and thereby produce a shock or expansion wave after each restrictor.

. . .

The critical pressure ratio needed to achieve choking in any liquid/gas mixture is, in general, a function of pressure and volumetric mixture proportions and can, if necessary, be determined by experiment.

“[D]iscovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art.” In re Boesch, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). Dunne shows that the propellant-to-solvent ratio was recognized as a “result effective variable” by those skilled in the art; therefore, the recitation in claim 1 of a specific ratio is inadequate to patentably distinguish the claims over the prior art.

The examiner concluded that “it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the aerosol containers of Dunne et al. for the aerosol hair care compositions of Mougin et al. for their art-recognized purpose. One having ordinary skill in the art would have been motivated to do this to obtain fine foam and good atomization as suggested by Dunne et al.” Examiner’s Answer, pages 3-4. We agree that the cited references would have made the product of instant claim 1 prima facie obvious.

Appellants argue that “neither Mougin [n]or Dunne teach or suggest that the polycondensate be made up of an arrangement of blocks where the blocks are obtained from: (1) at least one compound with two active hydrogen atoms per molecule; (2) at least one diol containing at least one functional group chosen from acid radicals and salts thereof; and (3) at least one isocyanate chosen from di- and polyisocyanates.”

Appeal Brief, page 6.

This argument is not persuasive because, for the reasons discussed above, we conclude that Mougín would have reasonably suggested the polycondensate recited in instant claim 1.

Appellants also argue that “there is no evidence of record suggesting that Mougín discloses the polycondensate is obtained from at least one diol containing at least one functional group chosen from acid radicals and salts thereof, other than the broad recitation at column 4, lines 17-24 that the coupling agents carry chemically anionizable or cationizable groups.” Appeal Brief, page 7. “[W]ithout further suggestions or identified parameters in Mougín to select a particular combination of variable giving rise to the recited combination, the disclosure is merely directed to endless possibilities, and thus, cannot render obvious Applicants['] recited claims. See In re Baird, 16 F.3d 380, 382, 29 U.S.P.Q.2d 1550, 1552 (Fed. Cir. 1994).” Id., page 8.

This argument is also unpersuasive. While Mougín’s description of the coupling agent in column 4 is indeed broad, the reference goes on to describe preferred coupling agents within that broad genus. Specifically, Mougín describes coupling agents comprising “divalent radicals B carrying carboxylic or sulphonic functional groups which are particularly suitable within the scope of the [disclosed] invention.” Column 6, lines 24-26. Those “particularly suitable” coupling agents reasonably appear to be diols comprising an acid radical or salt thereof. Thus, Mougín would have suggested to those skilled in the art a polycondensate such as that recited in instant claim 1. Since Mougín directs those skilled in the art to coupling agents such as those recited in the instant claims, the facts of this case are not comparable to those of Baird.

Summary

The references cited by the examiner would have reasonably suggested the invention of claim 1 to a person of ordinary skill in the art. The rejection of claim 1 is affirmed. Claims 2-29 fall with claim 1.

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

AFFIRMED

Joan Ellis	)	
Administrative Patent Judge	)	
	)	
	)	
	)	BOARD OF PATENT
Donald E. Adams	)	
Administrative Patent Judge	)	APPEALS AND
	)	
	)	INTERFERENCES
	)	
Eric Grimes	)	
Administrative Patent Judge	)	

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Finnegan, Henderson, Farabow,  
Garrett & Dunner LLP  
1300 I Street NW  
Washington, DC 20005-3315