

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

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Date of mailing (day/month/year) **25 JUL 2007**

Applicant's or agent's file reference
18727

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/US 06/13975

International filing date (day/month/year)
13 April 2006 (13.04.2006)

Priority date (day/month/year)
15 April 2005 (15.04.2005)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - A23G 3/00 (2007.01)
USPC - 426/660

Applicant **Hershey Foods Corporation**

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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Date of completion of this opinion
04 May 2007 (04.05.2007)

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Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

- the international application in the language in which it was filed
 a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- a sequence listing
 table(s) related to the sequence listing

b. format of material

- on paper
 in electronic form

c. time of filing/furnishing

- contained in the international application as filed
 filed together with the international application in electronic form
 furnished subsequently to this Authority for the purposes of search

3. In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-58</u>	YES
	Claims	<u>None</u>	NO
Inventive step (IS)	Claims	<u>None</u>	YES
	Claims	<u>1-58</u>	NO
Industrial applicability (IA)	Claims	<u>1-58</u>	YES
	Claims	<u>None</u>	NO

2. Citations and explanations:

Claims 1-58 lack an inventive step under PCT Article 33(3) as being obvious over US 5,578,336 A (Monte) in view of US 2004/0180110 A1 to (Mistry).

As to claim 1, Monte teaches a confectionery item for oral consumption by a consumer (col 2, ln 42-44), comprised of a tackified core (col 2, ln 29-34) and a coating entirely covering the core (col 6, ln 43), this coating comprised of:

- a) first layer comprised of a first binding agent (col 6, ln 52-53) substantially uniformly coating this core, this binding agent being present in quantities sufficient to promote cohesion between the core and an edible water soluble first carbohydrate (col 6, ln 53);
- b) second layer (col 3, ln 22-23) comprised of an edible water soluble first carbohydrate exhibiting a negative heat of solution (col 3, ln 5), this first carbohydrate being dispersed heterogeneously but substantially uniformly in this second layer;
- c) plurality of alternate layers (col 3, ln 22-23; fig 1) comprised of a second binder and an edible water soluble second carbohydrate, exhibiting a negative heat of solution (col 3, ln 5), and a second binding agent (col 6, ln 52-53); and
- d) an optional layer covering the alternative layer comprised of a low hygroscopic agent having a hygroscopicity less than glycerin and sorbitol (col 3, ln 5).

Monte, however, does not teach these layers are arranged in a:

- e) Honeycomb mesh of alternative layers of said second binder and second carbohydrate, the amount of second binding agent being present in quantities sufficient for the carbohydrate in the next layer to adhere thereto, this layer comprising the second binding agent being the bottom and top layer of the alternative layers. However, Mistry does (para [0057]). Mistry further teaches explicitly that the same carbohydrates disclosed by Monte have a negative heat of solution (para [0012], [0013]) and this second carbohydrate exhibiting a negative heat of solution, wherein each of the second binders in the alternative layer may be the same or different and wherein the identity of each of the second carbohydrate may be the same or different;

Monte also does not teach:

- f) optionally a top layer covering the confectionery item comprised of a confectioners shellac or confectioners glaze. However, Mistry does further teach (para [0055], wax, shellac, carboxyl methyl cellulose).

Mistry further teaches a confection wherein the total amount of all of the carbohydrate present in the coating is in sufficient quantities to create a cooling sensation when this item is placed in the mouth of consumers (para [0012]-[0013]).

Those skilled in the art of confectionery would have known how to make soft-centered candies. All require a soft core, binders and at least one coating. These ingredients are fairly standard in the industry. Food grade wax may be further used for a final coating. The difference lies in the particular ingredients, proportions and repetitions of steps to achieve a desired taste, texture and size. Confectioners today have the option of natural and artificial sweeteners, like sugar alcohols. Therefore, it would have been obvious to one of ordinary skill in the art a make a confection by combining the teachings of Monte with Mistry to create a candy with a gelatin core and multiple layers of binder and sugar alcohol. It is proper to combine Monte and Mistry, as they are in the same confectionary arts and would have been known to one of ordinary skill in the art at the time the invention was made.

As to claims 2 and 4, Monte, in view of Mistry, teaches the confectionery item of claim 1 and claim 3, respectively, has a gelatin core (col 2, ln 32-34) (see discussion of claim 3, on which claim 4 is dependent, below).

As to claim 3, Monte, in view of Mistry, teaches the confectionery item of claim 1 has a flavored matrix core (col 6, ln 14-17).

As to claim 5, Monte, in view of Mistry, teaches the confectionery item of claim 1 has a water-soluble third carbohydrate with a negative heat of solution (col 3, ln 5).

As to claim 6, Mistry teaches the water-soluble third carbohydrate of claim 5 comprises between 1-80% by weight of the binding agent (para [0025]).

As to claim 7, Monte, in view of Mistry, teaches potentially using the same first, second and third carbohydrates (col 3, ln 5-24).

-----continued in the Supplemental Box-----

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Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Claim 58 is directed to:

The confectionary item according to claim 47 wherein the coating comprises about 40% to about 80% (w/w) of said carbohydrate to said binding agent in the coating ranges from about 7:1 to about 20:1.

It is not clear whether the claim is directed to the proportion of coating to carbohydrate, coating to binding agent, or carbohydrate to binding agent. For purposes of examination, it is assumed the applicant intended claim 58 to read:

The confectionary item according to claim 47 wherein the coating comprises about 40% to about 80% (w/w) of said carbohydrate.

Claims 29 and 30 in pertinent part are directed to a "potentially sweet sweetener." For purposes of examination, it is assumed the applicant intended these claims to comprise a "potently sweet sweetener."

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

Box V 2. Citations and explanations

As to claims 8-9, Monte, in view of Mistry, teaches the confectionery item of claims 1 and 7, respectively, with the same first and second binding agents (col 6, ln 52-53).

As to claims 10-12, Mistry teaches the confectionery item of claim 9 has the binding agent gum arabic (para [0027]; [0056]). Mistry also teaches this binder in combination with a water-soluble carbohydrate that has a negative heat of solution (para [0012]-[0013]).

As to claims 24-25, Monte, in view of Mistry, teaches the confectionery item of claim 1 has an optional layer comprising mannitol, which has a low hygroscopicity (col 3, ln 5).

As to claims 26-27, Mistry teaches the confectionery item of claim 1 has an outermost layer comprising confectioners shellac (para [0055]).

As to claim 28, Monte, in view of Mistry, teaches the confectionery item of claim 1, wherein the core is tackified by adding an aqueous solution of potentially sweet sweetener, water or carbohydrate (col 2, ln 45).

As to claims 29-30, Monte, in view of Mistry, teaches the confectionery item of claim 28 has at least 0.1% acesulfame-K, aspartame, saccharine, neotame, stevioside, cyclamate, sucralose, glycyrrhizin, alitame, thaumatin, or mixture thereof (col 5, ln 55-64).

As to claim 31, Monte, in view of Mistry, teaches the confectionery item of claim 9 has a coating comprising a potentially sweet sweetener (col 3, ln 24-25), an anti-oxidant (col 5, ln 30-35), coloring agent, acidulant, vitamin (col 5, ln 30-35), preservative, or mixture thereof.

As to claim 32, Monte, in view of Mistry, teaches the confectionery item of claim 1 specifically comprises:

- a) a flavored (col 6, ln 14-17) gelatin capsule core (col 2, ln 32-34);
- b) coated with a binding agent comprising gum arabic (Mistry, para [0027], [0056]) and xylitol (Mistry, para [0013]);
- c) further coated with successive layers (col 3, ln 22-23) of xylitol (col 3, ln 5) and binding agent until a desired thickness is obtained; and
- d) finally coated with an outermost layer of mannitol (col 3, ln 5).

Those skilled in the art would have known how to create soft candy cores of varying compositions. They would also have known how to layer, or pan, liquid or crystalline sugar or sweetener around the core to achieve a candy of desired thickness. Artificial sweeteners and sugar alcohols were well known in the art, in both liquid and crystalline form. It would have been obvious to one of ordinary skill in the art at the time to create the specific confections described, based on general knowledge in the art, as well as on routine experimentation and design choice, in view of Monte, in light of Mistry.

As to claim 35, Monte, in view of Mistry, teaches a method of preparing a confectionery item for consumption comprising the steps of:

- a) preparing a tackified matrix core (col 2, ln 29-34);
- b) coating the core by
 - 1) applying a layer comprised of a first binding agent onto the surface of the core, this binding agent substantially uniformly coating the core, this binding agent being present in sufficient amounts to bind the first carbohydrate thereto (Mistry, para [0027], [0056], [0013]);
 - 2) applying substantially uniformly on the first layer a second layer comprised of a powdered deposit (Mistry, para [0013]) of an edible water-soluble carbohydrate exhibiting a negative heat of solution (Mistry, para [0014]);
 - 3) applying substantially uniformly onto the product of (2) alternate layers (col 3, ln 22-23; fig 1) of a second binding agent and a water soluble second carbohydrate exhibiting a negative heat of solution, these alternate layers being applied substantially uniformly thereon to form a honeycombed mesh structure comprised of an alternate layer of this binding agent and this carbohydrate, the topmost layer and the bottommost layer thereof being a layer comprising this second binding agent, respectively, the binding agent being present in sufficient amounts to bind the carbohydrate in the next layer thereto wherein each of the second binding agents are the same or different and each of the second carbohydrates are the same or different; and,
 - 4) optionally applying substantially uniformly on the product of (3), a layer comprising a low hygroscopic flow agent (col 3, ln 5); and
- c) optionally coating the product of step (b) with a confectioners glaze or confectioners shellac, the carbohydrates in total being present in the coating in amounts sufficient to create a cooling sensation when this confectionery item is placed in the mouth (Mistry, para [0012]-[0014]).

As to claim 36, Monte, in view of Mistry, teaches the confectionery item of claim 35 has a third carbohydrate present in either the first binding agent or in at last one of the second binding agents (col 3, ln 5).

As to claim 37, Monte, in view of Mistry, teaches the confectionery item of claim 35 has the same first and second binding agents (col 6, ln 52-53).

As to claims 38-39, Monte, in view of Mistry, teaches the confectionery item of claim 36 has the same first, second and third carbohydrates (col 3, ln 5-24).

As to claim 40, Monte, in view of Mistry, teaches the confectionery item of claim 38 has a binding agent with the same first, second and third carbohydrate (col 3, ln 5-24).

As to claims 41-42, Monte, in view of Mistry, teaches the confectionery item of claim 39 has a gelatin core capsule (col 2, ln 32-34).

As to claims 43-44, Monte, in view of Mistry, teaches the confectionery item of claim 42, wherein the core is tackified by adding a wetting agent selected from the group consisting of water, and an 0.1% aqueous solution of potentially sweet sweetener (col 2, ln 45).

-----continued in the next Supplemental Box-----

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

Prior Supplemental Box

As to claim 45, Mistry teaches the confectionery item of claim 39, wherein the binder is gum arabic (para [0027], [0056]).

As to claim 46, Mistry teaches the confectionery item of claim 35, wherein the first and second binders comprise a mixture of gum arabic (para [0027]; [0056]) and a water-soluble third carbohydrate with a negative heat of solution (para [0012]).

As to claims 47-49, Mistry teaches the confectionery item of claims 40 and 46 has the same second and third carbohydrates, including sorbitol, mannitol, maltitol, xylitol, lactitol, anhydrous isomalt, erythritol or a mixture thereof (para [0013]).

As to claim 50, Monte, in view of Mistry, teaches the confectionery item of claim 47 also has a coating with at least 0.1% potentially sweet sweetener (col 3, ln 2-6) and flavor, respectively (col 3, ln 25-28).

As to claim 51, Monte, in view of Mistry, teaches the confectionery item of claim 47 also has a coating with a flavoring agent (col 3, ln 25-28).

As to claims 52-53, Monte, in view of Mistry, teaches the confectionery item of claim 47 and 52, respectively, has the low hygroscopic flowing agent mannitol (col 3, ln 5).

As to claim 13, claim 9 obvious over Monte and Mistry as described above. Neither Monte nor Mistry disclose the particular heat of solution of the selected carbohydrate. However, this is an inherent characteristic of any given solution. Those skilled in the art would have simply been able to find the value for any of these carbohydrates from general knowledge in the art, such as a table in a standard chemistry book, and choose a carbohydrate with a heat of solution between 5 and 50 kcal/kg.

As to claims 14-15, Monte and Mistry both disclose the first, second and third carbohydrates with these heat of solutions are sorbitol, mannitol, maltitol, xylitol, anhydrous isomalt, erythritol, dextrose or a mixture thereof, preferably xylitol (Monte, col 3, ln 5; Mistry, para [0012]-[0013]).

As to claim 16, Monte, in view of Mistry, teaches the confectionery item of claim 13 has 5 layers (col 13, ln 52).

As to claims 17-18 and 33, neither Monte nor Mistry teach the confectionery item of claim 13 and claim 32, respectively, has more than 12 layers. That said, Monte does teach multiple coatings without a limit (col 3, ln 22-23). Those skilled in the art of coating candy would know how to add as many layers as desired. Therefore, it would have been obvious to add at least 20, and as many as 40 layers.

As to claims 19-21, claim 8 is obvious over Monte and Mistry as described above. Neither Monte nor Mistry teach the specific weight of coating relative to the binding agent. Nonetheless, those skilled in the art would know how to adjust the relative amounts of these ingredients to achieve a candy of desired mouth feel, through routine experimentation as design choice. Therefore, it would have been obvious that the coating comprise between 12-40%, 10-30% and from about 15-20% w/w of the binding agent.

As to claim 22, claim 8 is obvious over Monte and Mistry as described above. Neither Monte nor Mistry teaches the specific weight of coating relative to the carbohydrate. However, those skilled in the art would know how to adjust the amounts of these ingredients to create a candy of desired mouth feel. Therefore, it would have been obvious that the coating comprise between 40-80% w/w of the carbohydrate.

As to claim 23, claim 6 is obvious over Monte and Mistry as described above. Neither Monte nor Mistry teaches the specific ratio of the weight of carbohydrate and the weight of binding agent. However, those skilled in the art would have known how to adjust these ingredients to create a candy of desired mouth feel. Therefore, it would have been obvious to add carbohydrate and binding agent in a ratio of about 7:1 to 20:1, based on routine experimentation and design choice.

As to claim 34, claim 32 is obvious over Monte and Mistry as described above. Neither Monte nor Mistry teaches the specific ratio of xylitol to mannitol. However, those skilled in the art would have known how to vary these ingredients to achieve the desired taste, size and texture of the candy. Therefore, it would have been obvious to use a ration of 4:1 to 12:1 xylitol to mannitol, based on routine experimentation and design choice.

As to claims 54-55, claim 37 is obvious over Monte and Mistry as described above. Neither Monte nor Mistry teach more than 5 total layers of binding agent and carbohydrate. That said, Monte does teach multiple coatings without a limit (col 3, ln 22-23). Those skilled in the art of coating candy would know how to add as many layers as desired. Therefore, it would have been obvious to add at least 20, and as many as 40 layers, based on general knowledge in the art, as well as upon routine experimentation and design choice.

As to claims 56-57, claim 47 is obvious over Monte and Mistry as described above. Neither Monte nor Mistry teaches specific proportions of coating and binding agent. Nonetheless, those skilled in the art would know how to adjust the relative amounts of these ingredients to achieve a candy of desired mouth feel. Therefore, it would have been obvious that the coating comprise between 12-40%, 10-30% and from about 15-20% w/w of the binding agent, based on general knowledge in the art, as well as upon routine experimentation and design choice.

As to claim 58, claim 47 is obvious over Monte and Mistry as described above. Neither Monte nor Mistry teaches specific proportions of coating and carbohydrate. However, those skilled in the art would know how to adjust the amounts of these ingredients to create a candy of desired mouth feel. Therefore, it would have been obvious that the coating comprise between 40-80% w/w of the carbohydrate, based on general knowledge in the art, as well as upon routine experimentation and design choice.

Claims 1-58 have industrial applicability under PCT Article 33(4) because the subject matter can be made or used in industry.