Patent Law

Prof. Roger Ford
Monday, October 31, 2016
Class 16 – Patentable subject matter II

Recap

Recap

- → Overview of patentable subject matter
- → The implicit exceptions
- → Laws of nature

Today's agenda

Today's agenda

- → Overview of patentable subject matter
- → Products of nature
- → Abstract ideas
- → A unified framework

PSM overview

PSM overview

→ 3+1 core requirements for patentability

- Utility (§ 101)
- Novelty (§ 102)
- Nonobviousness (§ 103)
- Patentable subject matter (§ 101)

(Post-AIA) 35 U.S.C. § 101 — Inventions patentable

Whoever invents or discovers any **new** and **useful process, machine, manufacture, or composition of matter**, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

PSM overview

→ Two-part inquiry:

- Step 1: Is it a process, machine, manufacture, or composition of matter?
- Step 2: If so, does it fall within an implicit exception as a law of nature, physical phenomenon, or abstract idea?

PSM overview

→ Two-part inquiry:

- Step 1: Is it a process, machine, manufacture, or composition of matter?
- Step 2: If so, does it fall within an implicit exception as a law of nature, physical phenomenon, or abstract idea?

Products of nature

Diamond v. Chakrabarty

→ New bacteria that can break down crude oil

- Takes a preexisting bacteria and inserts two preexisting plasmids that break down hydrocarbons
- Not a natural phenomenon: This is a combination that never existed before

Funk Brothers

→ New mixture of preexisting bacteria to fertilize leguminous plants (peanuts, peas, soybeans)

- Leguminous plants can absorb nitrogen, but only with help from bacteria
- Each plant needs a different bacteria species, but combinations inhibit each other
- Inventor (Bond) discovered which bacteria don't inhibit each other and figured out how to combine them

Funk Brothers

→ What was a natural phenomenon?

Funk Brothers

→ What was a natural phenomenon?

- Bacteria existed
- Bacteria inhibit each other
- Specific combinations of bacteria wouldn't inhibit each other

Funk Brothers

→ What did Bond invent?

Funk Brothers

→ What did Bond invent?

- He discovered these properties
- Put together the bacteria that wouldn't inhibit each other
- So invented a specific combination that wouldn't inhibit each other

Funk Brothers

→ So the patent covers a natural phenomenon, plus a trivial application of that phenomenon

- Thus, it is a discovery, not a patentable invention
- Carved out of § 101 as a natural phenomenon
- We have seen this reasoning before and will see it again

Funk Brothers

→ What's the difference between *Chakrabarty* and *Funk Brothers?*

Funk Brothers

→ What's the difference between *Chakrabarty* and *Funk Brothers?*

- Chakrabarty made something that had never existed before
- But: Chakrabarty just combined existing plasmids with existing bacteria
- And: Bond invented a new combination of different bacteria
- Can we reconcile them?

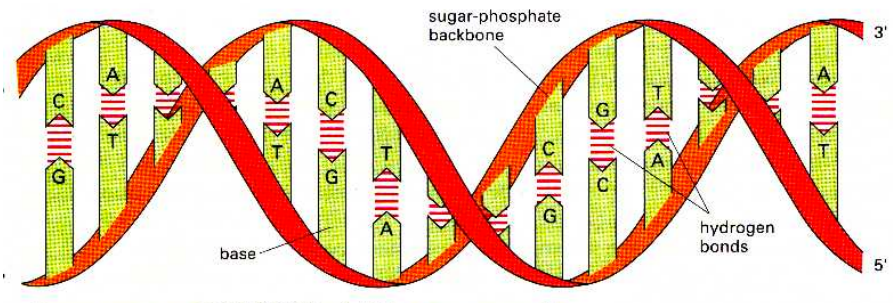
Myriad

→ Technology?

Myriad

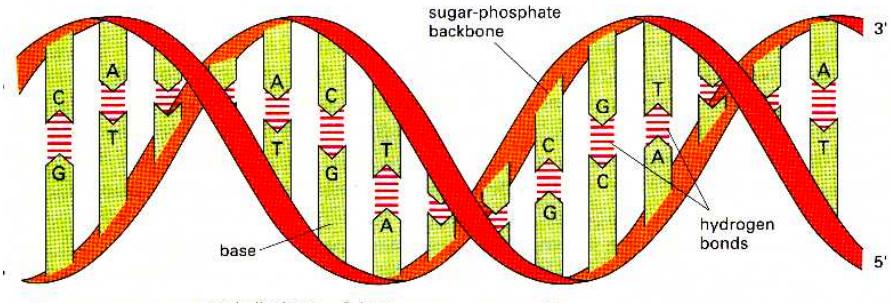
→ Technology?

- Isolated DNA
- Complementary DNA

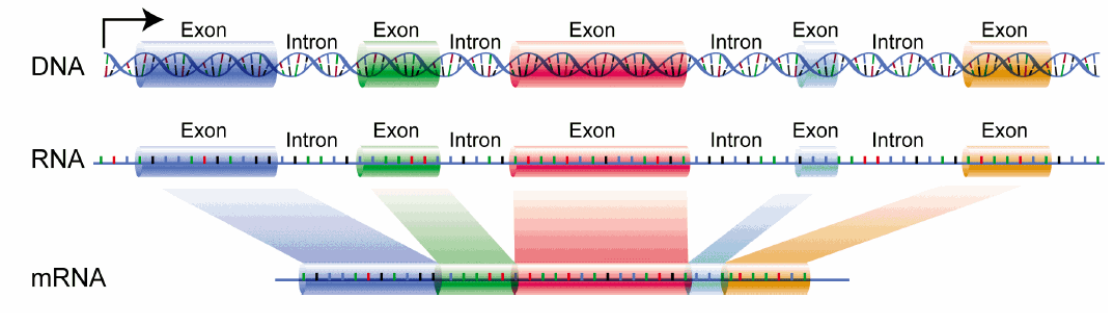


Myriad

- → Single chromosome: 80–110,000,000 base pairs
- → Isolated DNA: 80,000 base pairs
- → cDNA: 5,000–10,000 base pairs



Myriad



Myriad

→ *Parke-Davis & Co. v. HK Mulford & Co.*, S.D.N.Y. 1911 (L. Hand, J.)

- Isolated adrenaline is patentable
- "Takamine was the first to make it available for any use by removing it from the other gland-tissue in which it was found, and, while it is of course possible logically to call this a purification of the principle, it became for every practical purpose a new thing commercially and therapeutically."

Myriad

→ *Parke-Davis & Co. v. HK Mulford & Co.*, S.D.N.Y. 1911 (L. Hand, J.)

- This was considered good law for 100+ years
- PTO guidelines, Federal Circuit cases, &c
- E.g., purified insulin was patented

Myriad

→ Unanimous Supreme Court: isolated DNA is not patentable; cDNA is patentable

- isolated DNA appears in nature
- cDNA does not

→ Are you persuaded?

Myriad

→ What steps are taken to make isolated DNA?

→ What steps are taken to make cDNA?

Myriad

→ Don't isolated DNA and cDNA result in molecules that don't exist in nature?

Myriad

→ Don't isolated DNA and cDNA result in molecules that don't exist in nature?

- Court: "Myriad's claims are simply not expressed in terms of chemical composition, nor do they rely in any way on the chemical changes that result from the isolation of a particular section of DNA. Instead, the claims understandably focus on the genetic information encoded in the BRCA1 and BRCA2 genes."

Myriad

→ Don't isolated DNA and cDNA result in molecules that don't exist in nature?

- Court: "…creation of a cDNA sequence from mRNA results in an exons-only molecule that is not naturally occurring. … [T]he lab technician unquestionably creates something new when cDNA is made."

Myriad

→ What do you make of settled expectations? People had relied on these patents for 100 years…

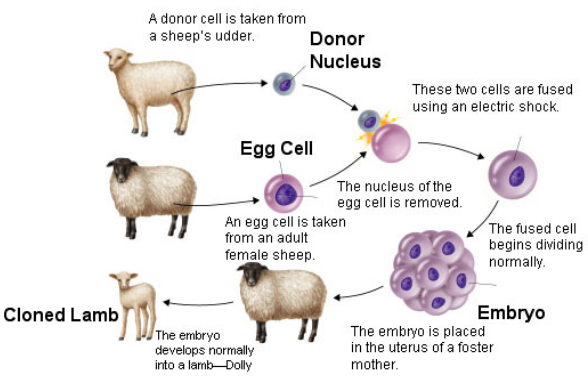
Myriad

→ What do you make of settled expectations? People had relied on these patents for 100 years…

- Court brushes by it because the government now argued it was wrong to do so
- Also, reliance interests are best addressed to Congress
- But, are they?

Roslin Institute

→ Technology: Cloned sheep!



Roslin Institute

→ Claims:

- The somatic method of cloning mammals
- The individual cloned animals

Roslin Institute

→ So do the clones exist in nature?

Roslin Institute

→ So do the clones exist in nature?

- In one sense, no, they're manmade
- In another sense, they're identical to the prior-art normal sheep

Roslin Institute

→ So do the clones exist in nature?

- "[in *Chakrabarty*,] the Court held that the modified bacterium was patentable because it was 'new' with '*markedly different characteristics from any found in nature* and one having the potential for significant utility.'"

Roslin Institute

→ So do the clones exist in nature?

- "However, Dolly herself is an exact genetic replica of another sheep and does not possess 'markedly different characteristics from any [farm animals] found in nature.'"

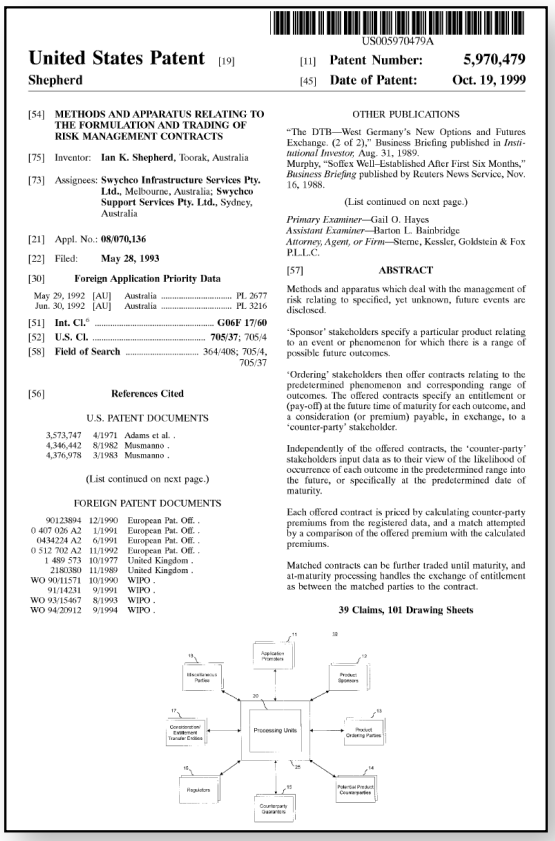
Chakrabarty	new bacteria	made from of existing bacteria and existing plasmid	patentable
Funk Brothers	new combination of bacteria	made from existing bacteria	not patentable
Myriad	new isolated DNA	made from existing genes	not patentable
Myriad	new cDNA	made from existing genes	patentable
Roslin	new cloned sheep 	made from existing sheep	not patentable

Bottom line (for now)

→ If you create something that didn't exist in nature, it's patentable
- Bacteria in *Chakrabarty*
- cDNA in *Myriad*

→ But if you purify something, or separate pieces, or bundle pieces, or recreate something that previously existed, probably not patentable
- Bacteria combination in *Funk Brothers*
- Isolated DNA in *Myriad*
- Cloned sheep in *Roslin Institute*

Abstract ideas



US005970479A

United States Patent [19]
Shepherd

[11] **Patent Number: 5,970,479**
[45] **Date of Patent: Oct. 19, 1999**

[54] **METHODS AND APPARATUS RELATING TO THE FORMULATION AND TRADING OF RISK MANAGEMENT CONTRACTS**

[75] Inventor: **Ian K. Shepherd**, Toorak, Australia

[73] Assignees: **Swycho Infrastructure Services Pty. Ltd.**, Melbourne, Australia; **Swycho Support Services Pty. Ltd.**, Sydney, Australia

[21] Appl. No.: **08/070,136**

[22] Filed: **May 28, 1993**

[30] **Foreign Application Priority Data**

May 29, 1992 [AU] Australia ..... PL 2677
Jun. 30, 1992 [AU] Australia ..... PL 3216

[51] **Int. Cl.**[6] **G06F 17/60**
[52] **U.S. Cl.** **705/37**; 705/4
[58] **Field of Search** 364/408; 705/4, 705/37

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Primary Examiner—Gail O. Hayes
Assistant Examiner—Barton L. Bainbridge
Attorney, Agent, or Firm—Sterne, Kessler, Goldstein & Fox P.L.L.C.

[57] **ABSTRACT**

Methods and apparatus which deal with the management of risk relating to specified, yet unknown, future events are disclosed.

'Sponsor' stakeholders specify a particular product relating to an event or phenomenon for which there is a range of possible future outcomes.

'Ordering' stakeholders then offer contracts relating to the predetermined phenomenon and corresponding range of outcomes. The offered contracts specify an entitlement or (pay-off) at the future time of maturity for each outcome, and a consideration (or premium) payable, in exchange, to a 'counter-party' stakeholder.

Independently of the offered contracts, the 'counter-party' stakeholders input data as to their view of the likelihood of occurrence of each outcome in the predetermined range into the future, or specifically at the predetermined date of maturity.

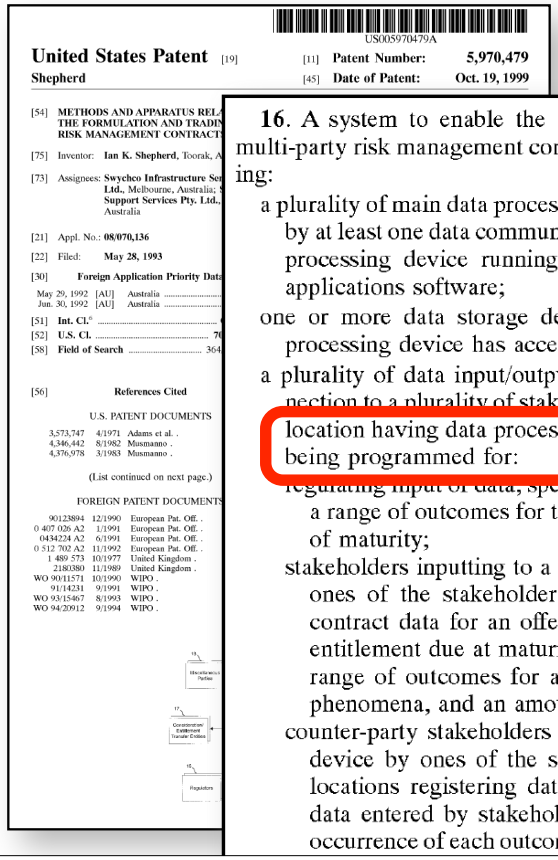
Each offered contract is priced by calculating counter-party premiums from the registered data, and a match attempted by a comparison of the offered premium with the calculated premiums.

Matched contracts can be further traded until maturity, and at-maturity processing handles the exchange of entitlement as between the matched parties to the contract.

39 Claims, 101 Drawing Sheets

U.S. Patent No. 5,970,479

→ "Method and apparatus relating to the formulation and trading of risk management contracts"



US005970479A

United States Patent [19]
Shepherd

[11] **Patent Number: 5,970,479**
[45] **Date of Patent: Oct. 19, 1999**

16. A system to enable the formulation of customized multi-party risk management contracts, the system comprising:

a plurality of main data processing devices interconnected by at least one data communications link, each said data processing device running an operating system and applications software;

one or more data storage devices to which each data processing device has access;

a plurality of data input/output channels providing connection to a plurality of stakeholder locations, each said location having data processing means, and the system being programmed for:

registering input of data, specifying a risk phenomenon, a range of outcomes for the phenomenon, and a time of maturity;

stakeholders inputting to a said data storage device by ones of the stakeholder data processing locations contract data for an offered contract, specifying an entitlement due at maturity for each outcome in the range of outcomes for a one of the predetermined phenomena, and an amount payable to a seller;

counter-party stakeholders inputting to a data storage device by ones of the stakeholder data processing locations registering data, independent of contract data entered by stakeholders, as to a likelihood of occurrence of each outcome in the range of outcomes

U.S. Patent No. 5,970,479

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Alice Corp. v. CLS Bank

→ What's the rule in this case?

Alice Corp. v. CLS Bank

→ What's the rule in this case?

- Takes the *Myriad* framework
- Look at the claim and see if it sets forth ~~a natural law~~ an abstract idea
- If so, look at the claim without the ~~natural law~~ abstract idea and see if there's an inventive concept
- This is our ~~new~~ now-unified two-step framework

Alice Corp. v. CLS Bank

→ How do we tell if something is an abstract idea?

Alice Corp. v. CLS Bank

→ How do we tell if something is an abstract idea?

- "fundamental economic practice long prevalent in our system of commerce"
- "building block of the modern economy"
- not a "preexisting, fundamental truth that exists in principle apart from any human action"

Alice Corp. v. CLS Bank

→ How do we tell if something is an abstract idea?

- But the reality is, it's hard to know – courts will be sorting this out for a while

Abstract ideas

→ Cases where the issue is most likely to arise:

- Algorithms
- Software
- Business methods

Gottschalk v. Benson

→ Technology: Method of converting binary-code decimal to binary

8. The method of converting signals from binary coded decimal form into binary which comprises the steps of

(1) storing the binary coded decimal signals in a reentrant shift register,

(2) shifting the signals to the right by at least three places, until there is a binary '1' in the second position of said register,

(3) masking out said binary '1' in said second position of said register,

(4) adding a binary '1' to the first position of said register,

(5) shifting the signals to the left by two positions,

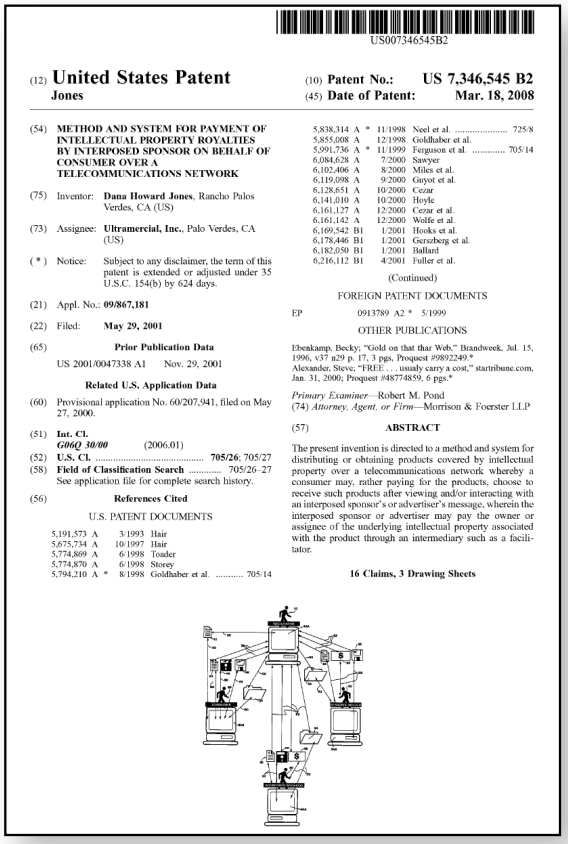
(6) adding a '1' to said first position, and

(7) shifting the signals to the right by at least three positions in preparation for a succeeding binary '1' in the second position of said register.

Gottschalk v. Benson

→ How is this different from

- A mathematical algorithm?
- A recipe?
- A chemical synthesis?



US007346545B2

(12) **United States Patent**
Jones

(10) **Patent No.: US 7,346,545 B2**
(45) **Date of Patent: Mar. 18, 2008**

(54) **METHOD AND SYSTEM FOR PAYMENT OF INTELLECTUAL PROPERTY ROYALTIES BY INTERPOSED SPONSOR ON BEHALF OF CONSUMER OVER A TELECOMMUNICATIONS NETWORK**

(75) Inventor: **Dana Howard Jones**, Rancho Palos Verdes, CA (US)

(73) Assignee: **Ultramercial, Inc.**, Palo Verdes, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 624 days.

(21) Appl. No.: **09/867,181**

(22) Filed: **May 29, 2001**

(65) **Prior Publication Data**

US 2001/0047338 A1 Nov. 29, 2001

Related U.S. Application Data

(60) Provisional application No. 60/207,941, filed on May 27, 2000.

(51) **Int. Cl.**
G06Q 30/00 (2006.01)

(52) **U.S. Cl.** **705/26**; 705/27

(58) **Field of Classification Search** 705/26–27
See application file for complete search history.

(56) **References Cited**

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Primary Examiner—Robert M. Pond
(74) *Attorney, Agent, or Firm*—Morrison & Foerster LLP

(57) **ABSTRACT**

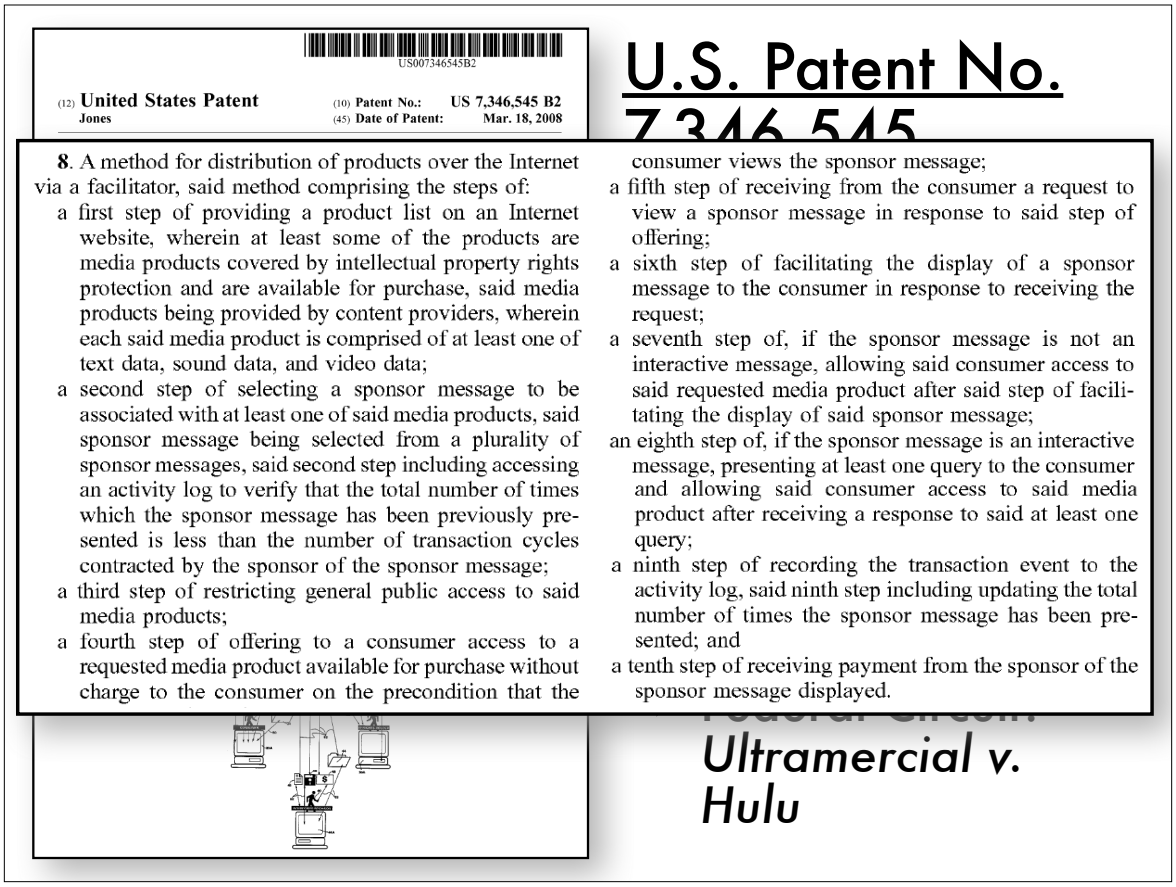
The present invention is directed to a method and system for distributing or obtaining products covered by intellectual property over a telecommunications network whereby a consumer may, rather paying for the products, choose to receive such products after viewing and/or interacting with an interposed sponsor's or advertiser's message, wherein the interposed sponsor or advertiser may pay the owner or assignee of the underlying intellectual property associated with the product through an intermediary such as a facilitator.

16 Claims, 3 Drawing Sheets

U.S. Patent No. 7,346,545

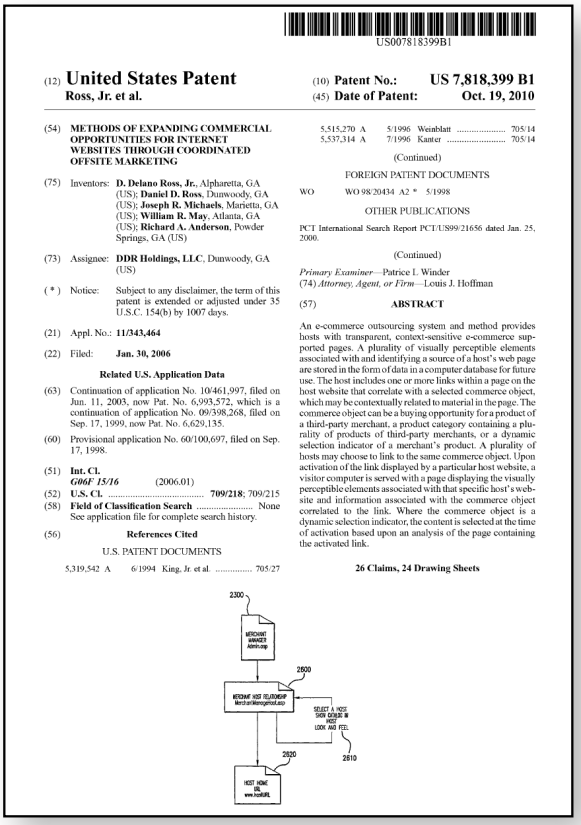
→ "Method and system for payment of intellectual property royalties by interposed sponsor on behalf of consumer over a telecommunications network"

→ Federal Circuit: *Ultramercial v. Hulu*



"This ordered combination of steps recites an abstraction—an idea, having no particular concrete or tangible form. The process of **receiving copyrighted media, selecting an ad, offering the media in exchange for watching the selected ad, displaying the ad, allowing the consumer access to the media, and receiving payment from the sponsor of the ad** all describe **an abstract idea, devoid of a concrete or tangible application**. Although certain additional limitations, such as consulting an activity log, add a degree of particularity, the concept embodied by the majority of the limitations describes only **the abstract idea of showing an advertisement before delivering free content**."

Ultramercial v. Hulu, No. 2010-1544 (Fed. Cir. Nov. 14, 2014)



US007818399B1

(12) **United States Patent**
Ross, Jr. et al.

(10) **Patent No.: US 7,818,399 B1**
(45) **Date of Patent: Oct. 19, 2010**

(54) **METHODS OF EXPANDING COMMERCIAL OPPORTUNITIES FOR INTERNET WEBSITES THROUGH COORDINATED OFFSITE MARKETING**

(75) Inventors: **D. Delano Ross, Jr.**, Alpharetta, GA (US); **Daniel D. Ross**, Dunwoody, GA (US); **Joseph R. Michaels**, Marietta, GA (US); **William R. May**, Atlanta, GA (US); **Richard A. Anderson**, Powder Springs, GA (US)

(73) Assignee: **DDR Holdings, LLC**, Dunwoody, GA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1007 days.

(21) Appl. No.: **11/343,464**

(22) Filed: **Jan. 30, 2006**

Related U.S. Application Data

(63) Continuation of application No. 10/461,997, filed on Jun. 11, 2003, now Pat. No. 6,993,572, which is a continuation of application No. 09/398,268, filed on Sep. 17, 1999, now Pat. No. 6,629,135.

(60) Provisional application No. 60/100,697, filed on Sep. 17, 1998.

(51) **Int. Cl.**
G06F 15/16 (2006.01)

(52) **U.S. Cl.** **709/218**; 709/215

(58) **Field of Classification Search** ..... None
See application file for complete search history.

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(Continued)

Primary Examiner—Patrice L Winder
(74) *Attorney, Agent, or Firm*—Louis J. Hoffman

(57) **ABSTRACT**

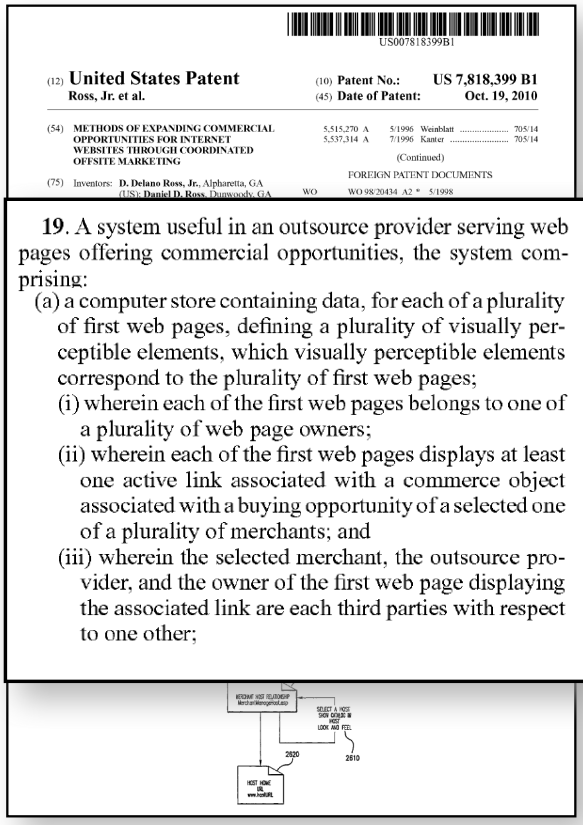
An e-commerce outsourcing system and method provides hosts with transparent, context-sensitive e-commerce supported pages. A plurality of visually perceptible elements associated with and identifying a source of a host's web page are stored in the form of data in a computer database for future use. The host includes one or more links within a page on the host website that correlate with a selected commerce object, which may be contextually related to material in the page. The commerce object can be a buying opportunity for a product of a third-party merchant, a product category containing a plurality of products of third-party merchants, or a dynamic selection indicator of a merchant's product. A plurality of hosts may choose to link to the same commerce object. Upon activation of the link displayed by a particular host website, a visitor computer is served with a page displaying the visually perceptible elements associated with that specific host's website and information associated with the commerce object correlated to the link. Where the commerce object is a dynamic selection indicator, the content is selected at the time of activation based upon an analysis of the page containing the activated link.

26 Claims, 24 Drawing Sheets

U.S. Patent No. 7,818,399

→ "Methods of expanding commercial opportunities for internet websites through coordinated offsite marketing"

→ Federal Circuit: *DDR Holdings v. Hotels.com*



US007818399B1

(12) **United States Patent**
Ross, Jr. et al.

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(45) **Date of Patent: Oct. 19, 2010**

(54) **METHODS OF EXPANDING COMMERCIAL OPPORTUNITIES FOR INTERNET WEBSITES THROUGH COORDINATED OFFSITE MARKETING**

(75) Inventors: **D. Delano Ross, Jr.**, Alpharetta, GA (US); **Daniel D. Ross**, Dunwoody, GA

5,515,270 A 5/1996 Weinblatt 705/14
5,537,314 A 7/1996 Kanter 705/14

(Continued)

FOREIGN PATENT DOCUMENTS

WO WO 98/20434 A2 * 5/1998

19. A system useful in an outsource provider serving web pages offering commercial opportunities, the system comprising:

(a) a computer store containing data, for each of a plurality of first web pages, defining a plurality of visually perceptible elements, which visually perceptible elements correspond to the plurality of first web pages;

(i) wherein each of the first web pages belongs to one of a plurality of web page owners;

(ii) wherein each of the first web pages displays at least one active link associated with a commerce object associated with a buying opportunity of a selected one of a plurality of merchants; and

(iii) wherein the selected merchant, the outsource provider, and the owner of the first web page displaying the associated link are each third parties with respect to one other;

(b) a computer server at the outsource provider, which computer server is coupled to the computer store and programmed to:

(i) receive from the web browser of a computer user a signal indicating activation of one of the links displayed by one of the first web pages;

(ii) automatically identify as the source page the one of the first web pages on which the link has been activated;

(iii) in response to identification of the source page, automatically retrieve the stored data corresponding to the source page; and

(iv) using the data retrieved, automatically generate and transmit to the web browser a second web page that displays: (A) information associated with the commerce object associated with the link that has been activated, and (B) the plurality of visually perceptible elements visually corresponding to the source page.

U.S. Patent No. 7,818,399

→ "Methods of

→ Federal Circuit: *DDR Holdings v. Hotels.com*

"[T]he '399 patent's asserted claims **do not recite a mathematical algorithm**. Nor do they recite a **fundamental economic or longstanding commercial practice**. Although the claims address a business challenge (retaining website visitors), it is a challenge particular to the Internet. * * *

"[T]hese claims stand apart because they do not merely recite the performance of some business practice known from the pre-Internet world along with the requirement to perform it on the Internet. Instead, the claimed solution is **necessarily rooted in computer technology** in order to overcome a **problem specifically arising in the realm of computer networks**."

DDR Holdings v. Hotels.com, No. 2013-1505 (Fed. Cir. Dec. 5, 2014)

"The '399 patent's claims are different enough in substance from those in *Ultramercial* because they do not broadly and generically claim 'use of the Internet' to perform an abstract business practice (with insignificant added activity). Unlike the claims in *Ultramercial,* the claims at issue here **specify how interactions with the Internet are manipulated to yield a desired result**—a result that **overrides the routine and conventional sequence of events ordinarily triggered by the click of a hyperlink**. * * * When the limitations of the '399 patent's asserted claims are **taken together as an ordered combination**, the claims recite an invention that **is not merely the routine or conventional use of the Internet**."

DDR Holdings v. Hotels.com, No. 2013-1505 (Fed. Cir. Dec. 5, 2014)

Abstract ideas

→ Practical effect of *Alice*

- Since *Alice*, ***many*** software and business-method patents have been invalidated under § 101
- Many have been invalidated on motions to dismiss
- Would you rather win on § 101 or § 102/103?

Abstract ideas

→ Some possible "abstract ideas"

- Things that we can conceive as algorithms
- Things with no physical manifestation
- Implementations of longstanding ideas
- Things that are too broadly claimed?

A unified framework

A unified framework

→ Before:

- 1. Does a patent claim a "process, machine, manufacture, or composition of matter"?
- 2. If so, does it fall within an exception for laws of nature, natural phenomena, or abstract ideas?

A unified framework

→ Before:

- 1. Does a patent claim a "process, machine, manufacture, or composition of matter"?
- 2. If so, does it fall within an exception for laws of nature, natural phenomena, or abstract ideas?

A unified framework

→ Now:

- 1. Does a patent claim a "process, machine, manufacture, or composition of matter"?
- 2. If so, does it set forth a law of nature, natural phenomenon, or abstract idea?
- 3. If so, do the other elements of the claim add an inventive concept?

Next time

Next time

→ Infringement: claim construction and literal infringement