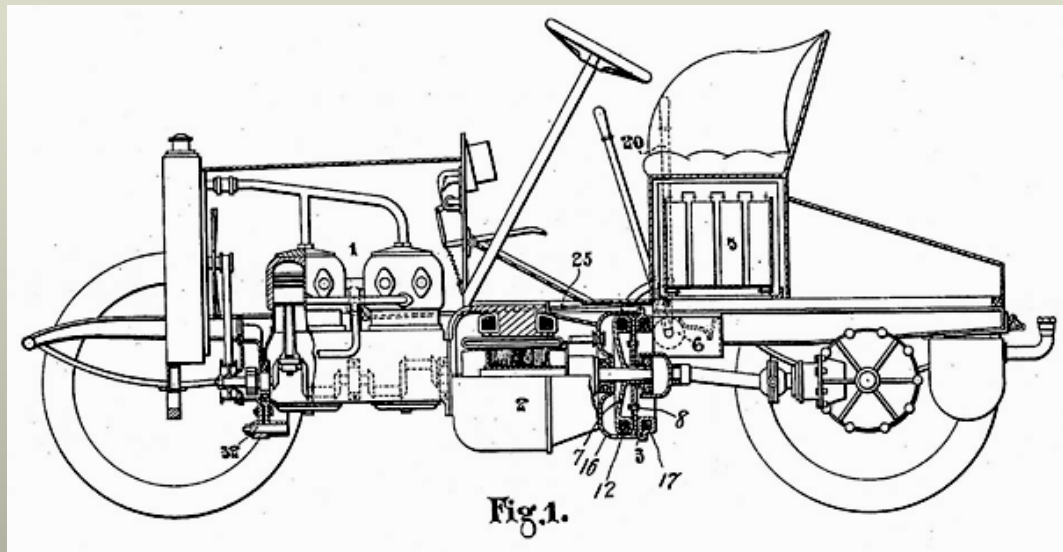


Do-it-Yourself Patent Search

Theo Kafantaris
Kafantaris Law Offices
Registered Patent Attorney



theo@kafantaris.com

(949)436-8436

www.kafantarislaw.com

About me:



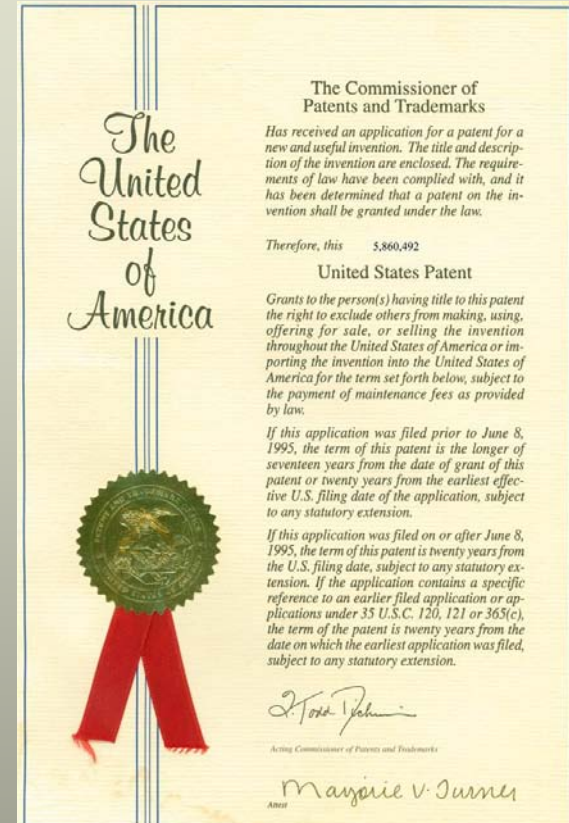
- Background in Computer Science & Engineering
- Former Examiner at the USPTO
- Registered Patent Attorney
- Solo Practitioner
- Office located in Irvine



Patent Basics



- A patent will publicly disclose an invention, but grants the inventor the exclusive right to make, use, and sell their invention and prevent others from doing the same.
- *“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”– 35 USC 101*





US006871616B2

(12) **United States Patent**
Zhadan-Milligan et al.

(10) **Patent No.:** US 6,871,616 B2
(45) **Date of Patent:** Mar. 29, 2005

Patent Sample

(54) **PET UMBRELLA AND COMBINED PET LEASH AND UMBRELLA**

(76) **Inventors:** Irina Zhadan-Milligan, P.O. Box 6412, New York, NY (US) 10150; Yuri Zhadan, P.O. Box 6412, New York, NY (US) 10150

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) **Appl. No.:** 10/782,942

(22) **Filed:** Feb. 23, 2004

(65) **Prior Publication Data**

US 2004/0200437 A1 Oct. 14, 2004

Related U.S. Application Data

(60) Provisional application No. 60/449,451, filed on Feb. 24, 2003.

(51) **Int. Cl.⁷** A01K 27/00

(52) **U.S. Cl.** 119/795; 119/769; 135/16

(58) **Field of Search** 119/795, 850, 119/769; 135/16, 20.1; D30/153, 151; 248/514

(56) **References Cited**

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2004/0134525 A1 *	7/2004	Godshaw et al.	135/16

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Harriet Carter Catalog Code 35 2465 4245 date unknown p. 65.

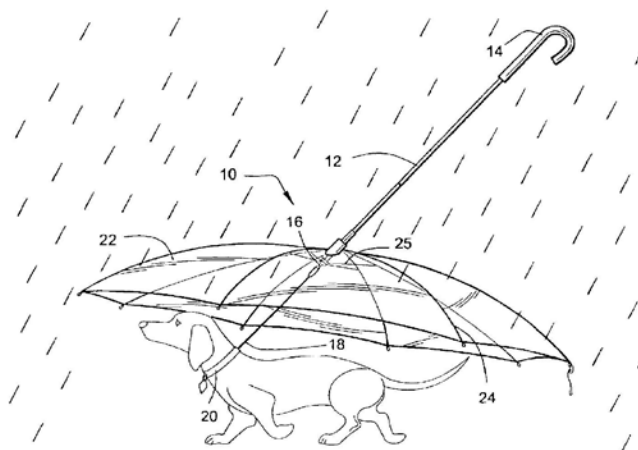
* cited by examiner

Primary Examiner—Teri P. Luu
Assistant Examiner—Kimberly S Smith
(74) *Attorney, Agent, or Firm*—Nixon & Vanderhye

(57) **ABSTRACT**

A pet umbrella combines an umbrella and a leash. The umbrella includes a shaft carrying a canopy moveable between open and closed positions. In the open position, the convex side of the canopy faces the umbrella handle. A leash is secured to the opposite end of the shaft on the concave side of the canopy. The canopy is preferably oval in plan and formed of clear plastic see-through material. The major axis of the oval defined by the canopy forms a plane with the shaft whereby the shaft forms an included angle in the plane with the shaft of less than 90° and preferably about 30°–60°.

18 Claims, 5 Drawing Sheets



Why Conduct a Patent Search?

Patentability

- A patent search is used to determine the patentability of an invention
- Must be New and Non-Obvious

Prosecution

- It can reduce the chances of rejection during examination
- Determine competing products and avoid infringement
- Become familiar with the field of invention

Searching evolves

- No search is ever complete
- Examiner always finds new art



Patent Search Engines



- Google Patents - www.google.com/patents FREE
- USPTO - www.uspto.gov FREE
- Delphion - www.delphion.com ~ \$150-300/month
- EPO - worldwide.espacenet.com FREE



Google Patents



- Pros

- Familiar interface and filters
- All patents sourced from the USPTO
- Text Searchable to 1790's
- Thumbnail images
- Can search patent number, title, inventor, assignee, class, patent type, status, and by filing/issue dates
- 8 million patents, 3 million patent applications
- Results ranked according to relevance
- Easy to download PDFs
- Simple
- Free

- Cons

- Limited Search Operators
- Only 8 searchable fields
- No international patents
- No guaranteed updates
- No Ability to Save Searches



Google – Advanced Search



- AND
- OR
- “” – Exact Phrase Search
- - – Exclude Word
- + – Exact Word Match
- * – Wildcard
- patent:, intitle:, allintitle:,
ininventor:, inassignee:,
uspclass:, intlclass:
- AND is the default operator
- ANDs outrank Ors
- AND, OR must be CAPs
- +, - must immediately
precede word
- * replaces a word

USPTO



- Pros

- Largest technical database
- Updated weekly
- 31 searchable fields
- PatFT – Search Issued Patents
- AppFT – Search Published Patent Applications
- PatImg – Every page of every patent
 - <7,000,000 patents!
- Free

- Cons

- Cumbersome Interface
- TIFF images instead of PDF
 - Requires TIFF reader
- Full Text-Searchable only from 1976+ for PatFT
- AppFT only from 2001+
- No international patents
- No Ability to Save Search Sets



USPTO – Advanced Search



- PN – Patent Number
- TTL – Title
- ABST – Abstract
- ACLM – Claims
- SPEC – Specification
- IN – Inventor Name
- ISD – Issue Date
- CCL – Current US Class
- Many more...
- And, Or, AndNot
- “” – Phrase Searching
- \$ – Right Truncation
- Stopwords – commonly used words are excluded
- Date Search
 - 03/15/2011->03/22/2001

ccl/270/31 and ttl/needle or ttl/syringe andnot (sew or thread\$) and apd/1/\$/2001

Delphion



- Pros
 - US (All), EP (All), German (All), WIPO PCT Apps, Japanese Abstracts, Mexico
 - Access to Derwent
 - Extensive list of restriction fields
 - Save and Export Results to Excel
 - Non-Patent Search
 - Automatic stemming (similar words)
 - International
 - Very powerful

- Cons
 - Expensive

The screenshot displays the Delphion website interface. At the top, the 'DELPHION' logo is on the left, and navigation tabs for 'RESEARCH', 'PRODUCTS', and 'INSIDE DELPHION' are on the right. Below the navigation is a blue banner with the text 'Access the patent information you need – and the tools to help you use it.' To the left of this banner is a vertical menu with links: 'Individual Subscriptions', 'Group Subscriptions', 'Basic Registration', and 'Tools and Features'. The main content area features a large blue box with the text 'SEARCH 54 MILLION WORLDWIDE PATENTS' and 'USE POWERFUL REPORTING AND ANALYSIS TOOLS', with a 'START NOW' button and a play icon. Below this is a 'Log In' section with fields for 'User Name:' and 'Password:', a 'Go' button, and links for 'Forgot your password?' and 'Looking for Client Reference?'. To the right of the login section is a 'Headlines' section with several news items, including '2010 Customer Conference: Registration Open', 'New Journal on Global IP Development Launching', 'Did your competitor file a patent today? Stay in the know with Delphion Alerts.', 'New on Delphion – Order File Histories Online', and 'View the Current Delphion Education Series Schedule'. On the far right, there are two promotional banners: 'TAKE THE DELPHION QUICK TOURS' and 'YOU'RE INVITED IP SOLUTIONS CUSTOMER CONFERENCE REGISTER NOW'.

Delphion – Advanced Search

- And
- Or
- Not
- <in>
- <near>
- <near/n>
- “” – Phrase Searching
- Left & Right Truncation
- <order>
- <thesaurus> - Synonyms
- ?, * Wildcards
- Many more...

DELPHION

((inventory OR component OR parts) <order><near/10> (management OR tracking OR location) <order><near/15> ("bar code" OR hand-held OR wireless)) <in> abstract

- Pros
 - Searchable in English, German, and French
 - Patent Families
 - Legal Status Info
 - Search Non-Patent Literature
 - Over 70 Countries
 - Free
- Cons
 - Abstracts only searchable in English
 - Max 4 search terms per field
 - Cannot search within date ranges



Espacenet – Advanced Search

- And
- Or
- Not
- ? – Truncation
- #, * - Wildcards
- Proximity Modifiers
- “” Phrase Searching
- IN = Inventor
- TI = Title
- AB = Abstract
- EC = European Class
- IC = International Class
- IA = Inventor & Applicant
- Many more...

The logo for Espacenet, featuring the word "espacenet" in a stylized font. The "e" is red and has a circular arrow around it. The "a" is blue. The "c" is red. The "e" is blue. The "n" is red. The "e" is blue. The "t" is red. There is a red underline under the "net" part of the word.

The Value Tradeoff

- Time is Money
 - Free patent search tools are not necessarily more cost-effective than fee-based databases once manpower costs are factored in
- Subscription databases have tools to greatly speed up searching, indexing, formatting, results, etc
- Several vendors offer flat monthly rates for unlimited use



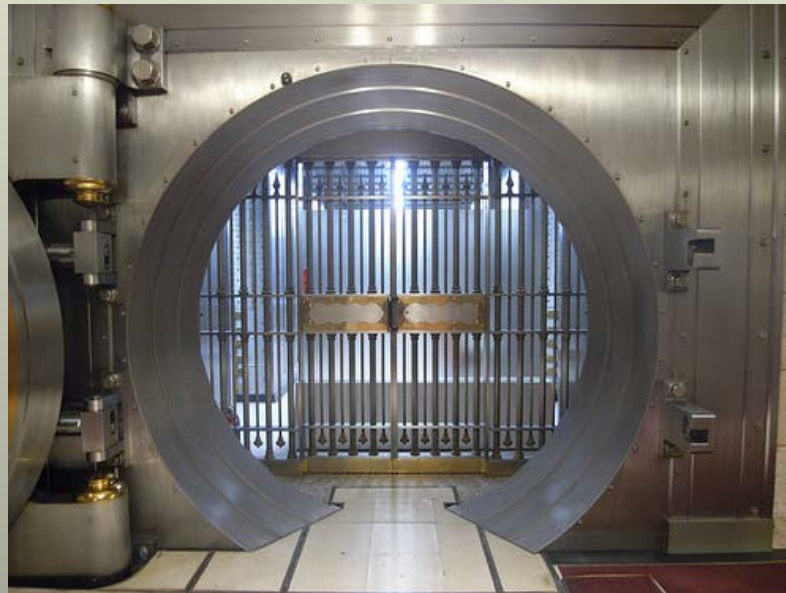
Which Search Engine to Use?

- Use free databases for quick answers and to verify results from other sources
- For critical projects or high-volume searching, use the best possible sources



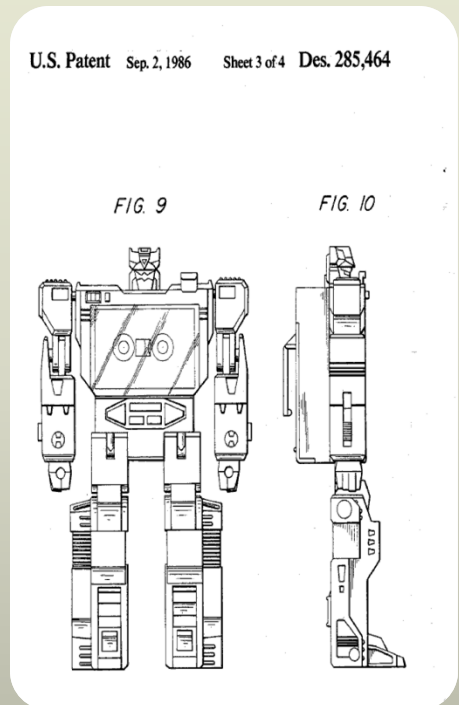
Controversy

- USPTO and Espacenet are still primitive and cumbersome (although Espacenet is getting much better)
- Some argue that this is intentional so they do not unfairly compete with commercial databases such as Delphion, Derwent, etc.



Overview – Search Strategy

1. Prepare keyword search strategy
2. Implement search strategy to find relevant patents
 - a) Discover relevant class (and maybe subclass)
 - b) Discover additional key words for search strategy
3. Narrow search to Class/Subclass
 - a) Discover more relevant patents
 - b) Discover more classes/subclasses
4. Forward and backward references
5. Repeat as necessary (until diminishing returns)



Building a Keyword Search Strategy



- Pick a phrase that describes the invention
- What does it do? How does it work? What are the features? What problems does it solve?
 - **Focus on Features!!!**
- Identify synonyms for your keywords
- Identify additional related concepts (and their synonyms)
- Build search Strategy around search phrase and features

See Handouts

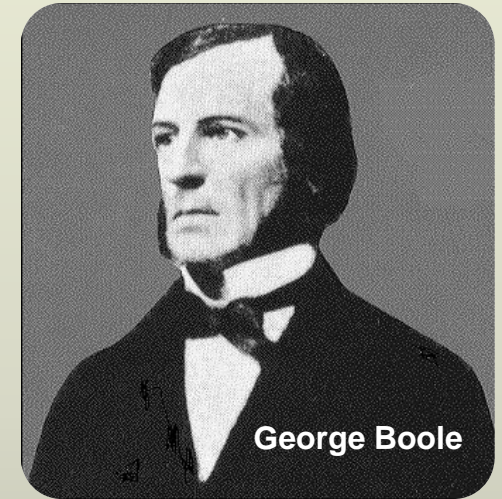
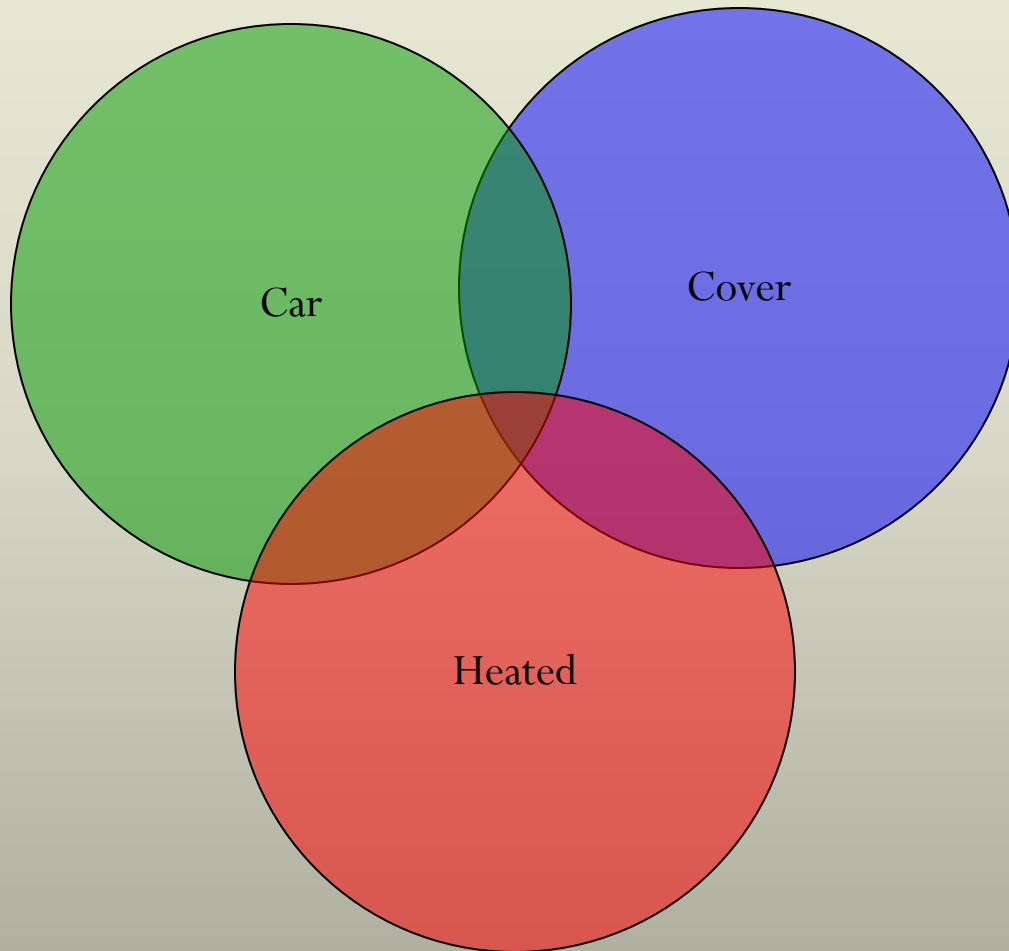


Example

- Phrase:
 - heated car cover
- Synonyms:
 - tarp, blanket, sheet
 - vehicle, car, automobile
 - heated, warm, warming
- Wildcards:
 - cover\$ (wildcard varies)
- Related Concepts:
 - snow, ice
 - melt



Boolean Logic



Google Strategy:

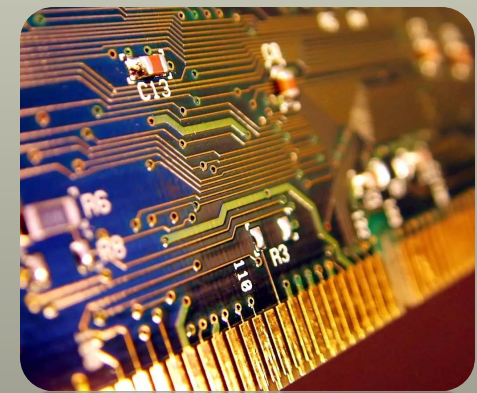
- (vehicle OR vehicles OR car OR cars OR automobile OR automotive OR automobiles)
- (cover OR covers OR tarp OR tarps OR blanket OR blankets)
- (heated OR heating OR heat OR heated OR warm OR warming OR warms OR warmed)
- (snow OR ice OR snowing)
- (melt OR melting OR melts)

Building a Search Strategy



One-line Google Search Strategy:

(vehicle OR vehicles OR car OR cars OR automobile OR automotive OR automobile) AND (cover OR covers OR tarp OR tarps OR blanket OR blankets) AND (heated OR heating OR heat OR heated OR warm OR warming OR warms OR warmed) AND (snow OR ice OR snowing) AND (melt OR melting OR melts)



Search results:



(vehicle OR vehicles OR car OR cars OR automobile OR automotive OR automobiles) (c)



About 553 results (0.22 seconds)

Advanced search

- Everything
- Images
- Videos
- News
- Shopping
- Patents
- More

Any date

Restrict by filing date
Restrict by issue date

Any filing status

Applications
Issued patents

Any patent type

Utility
Design
Plant
Defensive Publication
Additional Improvement
Statutory Invention Registration

List view

Grid view

Sorted by

[Vehicle windshield ice and snow melt system](#)



patents.google.com

US Pat. App 10342836 - Filed Jan 15, 2003

15, 2004 VEHICLE WINDSHIELD ICE AND SNOW MELT SYSTEM

BACKGROUND OF INVENTION ... Attempts to remove ice from the wiper blades using flexible covers to the ...

[Overview](#) - [Abstract](#) - [Drawing](#) - [Description](#) - [Claims](#)

[LED light assembly having heating board](#)



patents.google.com

US Pat. 7914162 - Filed Aug 23, 2007 - Issued Mar 29, 2011 - Grand General

Accessories Manufacturing

The Van Straten Patent is an indicator light cover for vehicles which includes ... the heat from a single light emitting diode to melt ice and snow from the ...

[Overview](#) - [Abstract](#) - [Drawing](#) - [Description](#) - [Claims](#)

[Remotely controlled automatic vehicle cover](#)



patents.google.com

US Pat. App 11151558 - Filed Jun 9, 2005

The heating element 76 is to melt the layer of ice or snow accumulated on the ... An apparatus for remotely controlling a vehicle cover comprising: (i) a ...

[Overview](#) - [Abstract](#) - [Drawing](#) - [Description](#) - [Claims](#)

[Heating apparatus for snow and ice removal](#)



patents.google.com

US Pat. App 12155344 - Filed Jun 3, 2008

It is to be understood that although an automobile is illustrated, ... heating time, both of which would be sufficient to melt the snow and/or ice. ...

[Overview](#) - [Abstract](#) - [Drawing](#) - [Description](#) - [Claims](#)

[Apparatus and method for controlling the temperature of a ...](#)



patents.google.com

US Pat. 6941935 - Filed Apr 24, 2003 - Issued Sep 13, 2005

Over time, this ice may melt and can no longer be used on the intake manifold or ... The warming blanket can be used to heat an internal combustion engines ...

[Overview](#) - [Abstract](#) - [Drawing](#) - [Description](#) - [Claims](#)

[Snow removal system](#)



patents.google.com

US Pat. App 11151558 - Filed Jun 9, 2005

Search results (cover view):



(vehicle OR vehicles OR car OR cars OR automobile OR automotive OR automobiles) (c



About 553 results (0.14 seconds)

[Advanced search](#)

Everything

Images

Videos

News

Shopping

Patents

More

Any date

[Restrict by filing date](#)

[Restrict by issue date](#)

Any filing status

[Applications](#)

[Issued patents](#)

Any patent type

[Utility](#)

[Design](#)

[Plant](#)

[Defensive Publication](#)

[Additional](#)

[Improvement](#)

[Statutory Invention](#)

[Registration](#)

List view

Grid view

Sorted by



[Vehicle windshield ice and snow melt system](#)

US Pat. App 10342836
Filed Jan 15, 2003



[LED light assembly having heating board](#)

US Pat. 7914162
Filed Aug 23, 2007
Issued Mar 29, 2011
Grand General Accessories Manufacturing



[Remotely controlled automatic vehicle cover](#)

US Pat. App 11151558
Filed Jun 9, 2005



[Heating apparatus for snow and ice removal](#)

US Pat. App 12155344
Filed Jun 3, 2008



[Apparatus and method for controlling the temperature of a](#)

US Pat. 6941935
Filed Apr 24, 2003
Issued Sep 13, 2005



[Snow removal system](#)

US Pat. App 11142599
Filed Jun 1, 2005



[Ice cooled cold plate and carbonator](#)

US Pat. 6945070
Filed Apr 15, 2004
Issued Sep 20, 2005
IMI Cornelius Inc.



[Windshield heating air appliance](#)

US Pat. App 10761504
Filed Jan 20, 2004



[Snow and ice melting system](#)

US Pat. 6696674
Filed Nov 15, 2002
Issued Feb 24, 2004



[Inflatable apparatus for covering a vehicle](#)

US Pat. 7360820
Filed May 3, 2002
Issued Apr 22, 2008



[Indicator light cover for vehicles and the like](#)

US Pat. 4728775
Filed Jul 24, 1987
Issued Mar 1, 1988



[Windshield airstream deflector for vehicles](#)

US Pat. 5852846
Filed Jan 17, 1997
Issued Dec 29, 1998



1 2 3 4 5 6 7 8 9 10 Next

Building a Search Strategy

Adding new terms:

(vehicle OR vehicles OR car OR cars OR
automobile OR automotive OR
automobile)_(cover OR covers OR tarp OR
tarps OR blanket OR blankets)_(heated OR
heating OR heat OR heated OR warm OR
warming OR warms OR warmed OR **deice OR
deicing or deices or deiced**)_(snow OR ice
OR snowing)_(melt OR melting OR melts)



Information on a Specific Patent



Google patents (vehicle OR vehicles OR car OR cars OR automobile) Search Patents [Advanced Patent Search](#)

Snow and ice melting system Anthony J. Doornsbosch



Overview

- [Abstract](#)
- [Drawing](#)
- [Description](#)
- [Claims](#)



A snow and ice melting system for deicing vehicles having a resistive heating element and a heating layer encasing the resistive heating element. The heating layer is capable of conducting heat and is pliable. A heat dissipation mesh is encased in a heat dissipation layer. The heat dissipation layer is connected to the heating layer. The heat dissipation layer is capable of conducting heat and is pliable.

Inventor: [Anthony J. Doornsbosch](#)

Primary Examiner: Ehud Gartenberg

Secondary Examiner: L. Fastovsky

Current Assignee: [Search USPTO Assignment Database](#)

[Read this patent](#)

[Download PDF](#)

Patent number: 6696674

Filing date: Nov 15, 2002

Issue date: Feb 24, 2004

Application number: 10/295,250

Current U.S. Classification

[219/528](#); [219/549](#)

International Classification

H05B/334; H05B/354

[View patent at USPTO](#)

Citations

Patent Number	Filing date	Issue date	Original Assignee	Title
US4581522	Nov 23, 1983	Apr 8, 1986	Intermountain Thermalfloor, Inc.	Electrical heating system including a mesh heating element
US4737618	Dec 24, 1985	Apr 12, 1988	Aerospatiale Societe Nationale Industrielle	Heating element for a defrosting device for a wing structure, such a device and a process for obtaining same
US4833305	Aug 12, 1987	May 23, 1989	Mitsuboshi Belting Limited	Thermally self-regulating elastomeric composition and heating element utilizing such composition
US5003157	Jan 25, 1990	Mar 26, 1991		Snow melting pathway mat apparatus
US5300760	Jan 21, 1992	Apr 5, 1994	Raychem Corporation	Method of making an electrical device comprising a conductive polymer
US5380988	Dec 23, 1993	Jan 10, 1995		Heated mat structure for melting ice and snow
US5433050	Nov 10, 1993	Jul 18, 1995	Atlas Roofing Corporation	Vented insulation panel with foamed spacer members
US5637247	Jan 3, 1995	Jun 10, 1997		Electrically heated hinged mat
US5804799	Nov 21, 1996	Sep 8, 1998		Snow and ice melting system
US5966502	Aug 13, 1997	Oct 12, 1999	Clearpath, Inc.	Apparatus for melting snow and ice
US5998770	Dec 16, 1997	Dec 7, 1999		Heated automotive bed liner
US6184496	May 31, 2000	Feb 6, 2001	Clearpath, Inc.	Driveway, walkway and roof snow and ice melting mat
US6294768	Aug 20, 1998	Sep 25, 2001	Advanced Recycling Sciences, Inc.	Flexible electrically heated tiles made from crumb rubber

Google Search Strategy with title limitation:

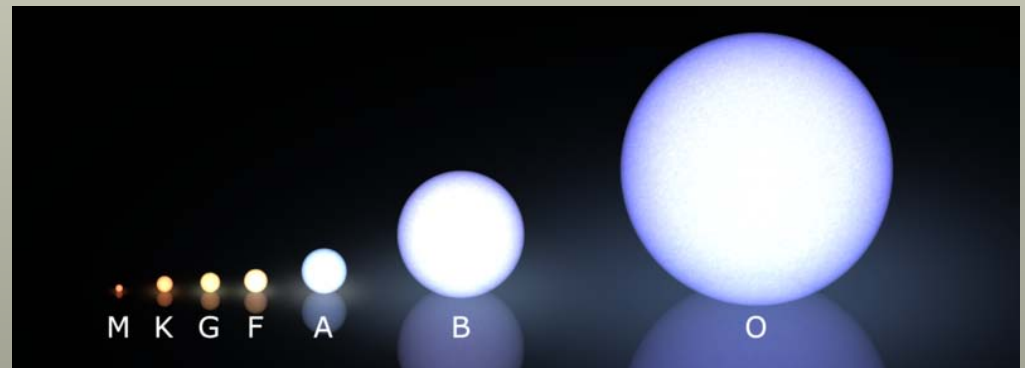


(intitle:COVER OR intitle:COVERS OR
intitle:TARP OR intitle:TARPS OR
intitle:BLANKET OR intitle:BLANKETS)
(vehicle OR vehicles OR car OR cars OR
automobile OR automotive OR automobile)
(heated OR heating OR heat OR heated OR
warm OR warming OR warms OR warmed) (snow
OR ice OR snowing) (melt OR melting OR
melts)



Classification

- Classification is based on subject matter
- Each patent office has it's own classification system
- USPTO: 263/201, 471/283
- International: A51B 11/01, F27D 13/08
- USPTO Class/Subclass Search:
 - <http://www.uspto.gov/web/patents/classification/>



Class/Subclass Search Strategy



- Determine initial classification(s) (use Classification Search or do a word search to find similar patents)
- Scan the class schedule in the Manual of Classification
- Read Subclass definitions to establish the scope of the subclasses
- Browse patent titles, abstracts, and pictures
- Retrieve subclass listing
- Review full text patent documents
- Check references cited and referenced by

Class & Sub-Class Searching



- Class & Sub-Class

- **Class 219 ELECTRIC HEATING**

- Subclass 200 HEATING DEVICES

- . 385 Combined with container, enclosure, or support for material to be heated

- ..526 With means for attaching housing or casing to an external device (e.g., magnetic or vacuum)

- ...527 Body-supported (e.g., human body)

- ..528 Flexible or resilient (e.g., warming pad)

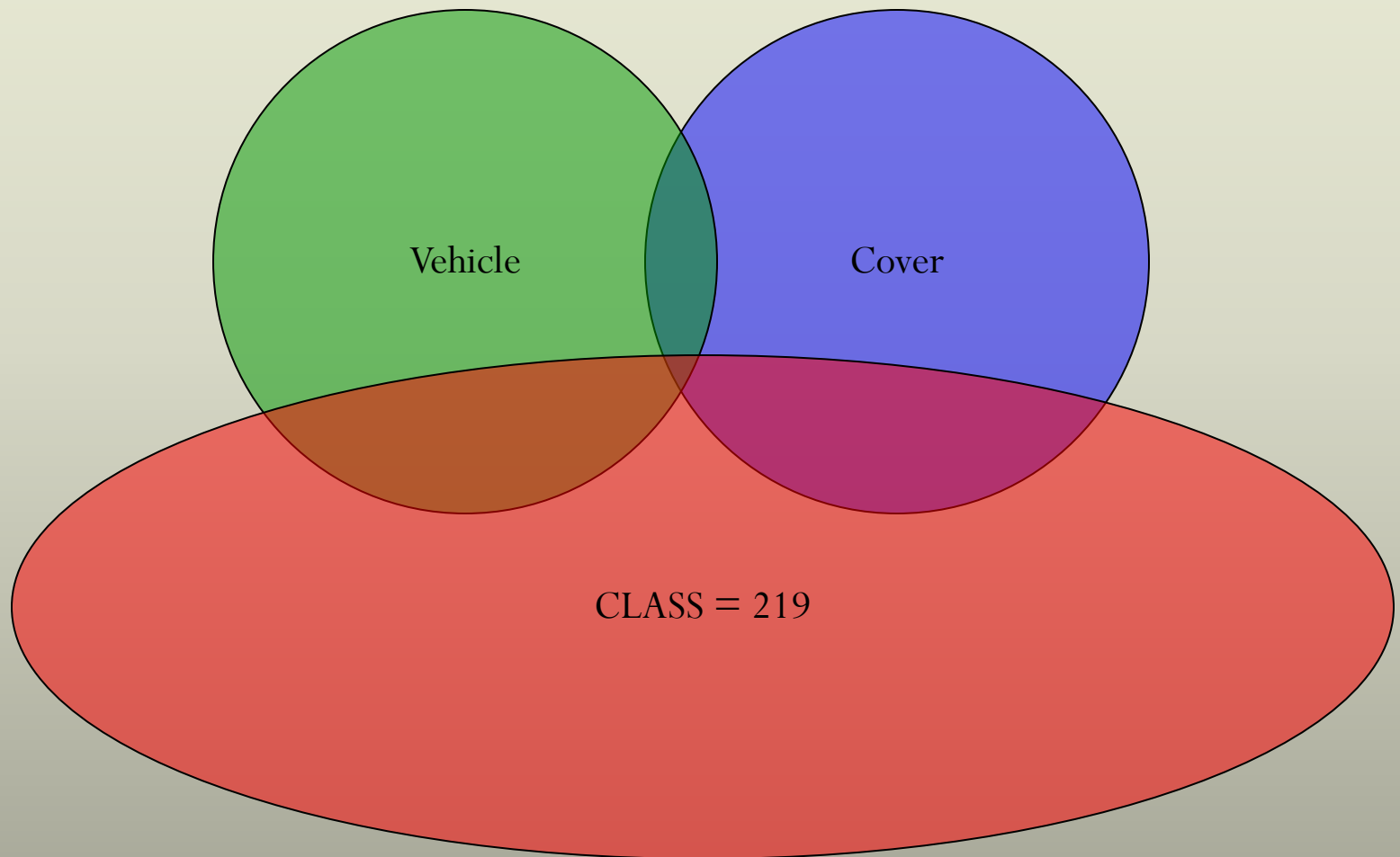
- ...529 Cloth or other fabric

- ..530 With heat storage or transfer means (vanes)

- ..531 With thermal insulation or cooling means

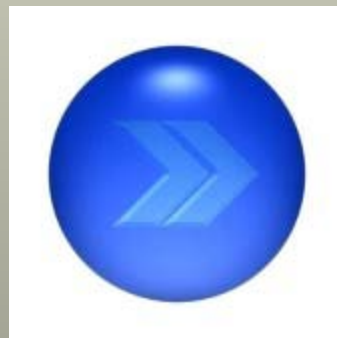
- ...

Boolean Logic



Forward/Backward References

- Patent are referred from and refer to other related patents
- This can be used as a search tool when you cannot find art using keyword and class searching
- This can also help verify your search results



Forward/Backward References



Citations

Patent Number	Title
---------------	-------

2619580	(unknown)
-------------------------	-----------

2834862	(unknown)
-------------------------	-----------

2844696	(unknown)
-------------------------	-----------

2912555	(unknown)
-------------------------	-----------

3143641	(unknown)
-------------------------	-----------

3437967	(unknown)
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3584198	(unknown)
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Referenced by

Patent Number	Title
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5710408	Automatic controlled for an ice and snow melting system with ground fault circuit interruption
-------------------------	--

5724479	Fluid flow controlling member
-------------------------	-------------------------------

5763858	Automatically controlled ice and snow melting system including a two-wire remote control
-------------------------	--

5948299	Portable snow melting device
-------------------------	------------------------------

5948299	Portable snow melting device
-------------------------	------------------------------

5763858	Automatically controlled ice and snow melting system including a two-wire remote control
-------------------------	--

5724479	Fluid flow controlling member
-------------------------	-------------------------------

5710408	Automatic controlled for an ice and snow melting system with ground fault circuit interruption
-------------------------	--

Summary of Steps:

1. Prepare a Keyword Search Strategy
2. Use Search Strategy to find relevant art, Class/Subclass
3. Refine search strategy with Class/Subclass
4. Refine search strategy with field searching (title, claims)
5. Check forward and backward references of relevant patents
6. Repeat as necessary until diminishing returns
7. Bonus: With highly relevant patents, check Public PAIR for more information:

<http://portal.uspto.gov/external/portal/pair>



Common Mistakes

- Absence of evidence is not evidence of absence
 - The search may not include the optimal keyword combinations
 - Some fields, such as classification, are missing from certain patent records, and may not be included in your search
- Don't stick to one search strategy...think literally, try to find new concepts, and explore multiple possibilities
- Patents are not the only place to find art
 - Search books, magazines, other publications
 - Use regular Google as well



Mentality Of An Examiner

- Most Patent Examiners are young engineers fresh out of college
- They work under the supervision of a Primary Examiner
- Their production goals are very high (most examiners look through thousands of patents before finding relevant art)
- There is pressure to reject applications
 - Many times, examiners will make loose rejections simply to satisfy their Primary Examiner (after all, it's easier to explain a rejection than to explain an allowance)





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