

Comparing Indexing Alternatives: Q Codes and IPC 8

The *Derwent World Patents Index*[®] (*DWPI*SM) indexing has long been recognized as a valuable tool in researching technology developments, with high precision search capability provided by manual coding in the chemical and electrical areas. Thomson Scientific has extended its expertise and now applies Manual Codes to transportation and related mechanical technologies within section Q of *DWPI*.

The new expanded indexing enables researchers to rapidly retrieve comprehensive and targeted results, delivering relevant information based on the patent's applicable context, as well as basic patent data, while excluding non-relevant records — giving you more critical information, with less effort.

Delivering Comprehensive and Targeted Transportation-related Results

Hierarchical indexing is one of the features that makes *DWPI* uniquely effective. Manually applied by our technology experts, this indexing enables you to quickly and precisely find patents that directly relate to your research by presenting listings in a logical order based on their relationships to specified technologies, irrespective of the core/advanced level of the new IPC Reform classification.

As part of its ongoing development of *DWPI*, Thomson Scientific commenced application of the new coding in update 200601, providing a powerful means of retrieving transport-related mechanical patent information by not just the mechanical aspects of the invention novelty, but also the invention's application.

The following sample applications exemplify how Q manual codes can be used in your search to retrieve better and more accurate results.

Narrowing Searches to Identify Vehicle-type

The Q19 vehicle type application manual codes provide a more effective alternative to International Patent Classification (IPC) codes when searching for technologies relating to a specific type of motor vehicle. IPC B60 codes indicate that the invention is used in a vehicle, but generally does not specify the type of vehicle. Using the Q19 manual codes within *DWPI* can narrow your search.

The online search string below highlights how simple it is to search for mechanical pedal (bi)cycle patents in *DWPI*. Between January and February 2006 there were 190 patents filed.

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- s (b62h?/ic OR b62J?/ic OR b62k?/ic OR b62l?/ic OR b62m?/ic) AND basic patents in weeks 200601-200615
- Result 1 = 470
- s Result 1 AND Q19-A/mc
- Result 2 = 169
- s q19-A/mc AND basic patents in weeks 200601-200615
- Result 3 = 190
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Searching using only the main cycle-relevant IPC code - B62, produces 464 hits, of which 169 are novel bicycle patents. This means that using the IPC codes alone excludes 21 patents from your search results that have been indexed with the Q19-A (Cycles) manual code, and also includes 280 unwanted patents for technologies, such as off-board cycle parking racks and

electrically-assisted cycles. Using the Q19-A manual code enables you to retrieve the 'missed' patent documents as well as avoid problem search terms such as 'cycle', which can be used in any number of scenarios and thus produce unwanted patents in your results set.

The following patent further highlights the usefulness of the Q19 vehicle application codes. The patent indicates primary and secondary IPC codes applied for novel seat and seat belt aspects IPC B60R (also covered by the Q14-A and Q14-C01 manual codes). However, IPC B60R does not specify the product's application, indicating only that the seat arrangement is used in a vehicle. Manual code Q19-C01 applied to the patent specifically highlights that this seat arrangement is used in a bus.

AN 2006-027579
 DNN N2006-024040
 TI Vehicle seat for e.g. school bus, has seatbelts fixed to movable seat base and seat back frame member, to secure child on child seat to seat base and seat back frame member.
 DC P26 Q14 Q19
 IN BOYLE, D C; FOYE, C W; GRAY, L E; SCELSE, J D; VITS, C G
 PA (BOYL-I) BOYLE D C; (FOYE-I) FOYE C W; (GRAY-I) GRAY L E; (SCSEL-I) SCELSE J D; (VITS-I) VITS C G
 CYC 1
 PI US 2005269861 A1 20051208 (200603)* 68 A47C007-02
 ADT US 2005269861 A1 CIP of US 1998-183088 19981030, Cont of US 2000-479197 20000107, CIP of US 2000-734361 20001211, Div ex US 2002-245983 20020917, US 2005-121335 20050503
 FDT US 2005269861 A1 CIP of US 6123388, CIP of US 6485098, Div ex US 6886889
 PRAI US 2002-245983 20020917; US 1998-183088 19981030;
 US 2000-479197 20000107; US 2000-734361 20001211;
 US 2005-121335 20050503
 IC A47C007-02 (Seat parts)
 ICS A47D015-00; B60R022-04 (seat belts); B60R022-12; B60R022-16; B60R022-36
 AB US2005269861 A UPAB: 20060130
 NOVELTY - The seat (300) includes a frame rigidly mounted on a vehicle and which supports a seat cushion (386) and a seatback. The seatback includes a stationary cushion, and a seatback frame member pivotable relative to the frame. Seatbelts (336) are fixed to a movable seat base and the seat back frame member, to secure the child on the child seat to the seat base and the seat back frame member.
 DETAILED DESCRIPTION - The seat base is supported to the seat back frame member, and is moved downward to form a child seat.
 USE - For e.g. school bus.
 ADVANTAGE - Ensures reliable protection of child sitting on child seat.
 DESCRIPTION OF DRAWING(S) - The figure shows the isometric view of the vehicle seat.
 Vehicle seat 300
 Seatbelts 336
 Seat cushion 386
 Rear face 388
 Front face 389
 Dwg. 16/45
 FS GMPI
 FA AB; GI

MC EPI: Q14-A (vehicle seats); Q14-C01 (seat belts); Q19-C01 (bus)

Obtaining Purpose-Driven Search Results

Some Q manual codes can also be used to group together patents that have a similar purpose. For example, manual code Q17-N (Noise/Vibration/Harshness reduction arrangements) can be used to easily find all mechanical patents within this field without having to resort to using a host of different key words or classifications.

The online search below is an example of how manual code Q17-N can be used to quickly

find patent documents in that area. A search of *DWPI* using Q17-N retrieves 176 patents between January and February 2006. Using IPC codes and keywords alone returns 214 patents, and when we investigate this further we find that only 69 have the Q17-N manual code applied meaning that some genuine noise/vibration/harshness patents are not found while unrelated patents are included.

- s (noise OR vibration OR harshness) AND basics in weeks 200601-200615
- Result 1 = 4731
- s Result 1 AND (B60?/ic OR B62?/ic)
- Result 2 = 365
- s Result 2 NOT (X21/dc OR X22/dc or X23/dc)
- Result 3 = 214

- s Result 3 AND Q17-N/mc

- Result 4 = 69
- s q17-N/mc AND basics in weeks 200601-200615
- Result 5 = 176

In the patent segment below, the manual code Q17-E04 and IPC code B60K-015 both convey similar vehicle fuel tank information, but by adding the manual code Q17-N to the search, you can uncover the real focus for this invention - reducing tank vibration.

AN 2006-061128 [07] WPIDS

DNN N2006-052911

TI Antivibration mount structure for motor vehicle fuel tank has installing member whose engaging portion is engaged with vibration-proofing member, and whose seat is fixed to tank body.

DC Q17

IN SHINOHARA, R

PA (HOND) HONDA MOTOR CO LTD

CYC 1

PI JP 2006001380 A 20060105 (200607)* 8 B60K015-03

ADT JP 2006001380 A JP 2004-178771 20040616

PRAI JP 2004-178771 20040616

IC ICM B60K015-03 (Fuel tanks); B60K015-063 (Arrangement of tanks)

AB JP2006001380 A UPAB: 20060130

NOVELTY - A vibration-proofing member (23) is attached to the tank body (11) through an installing member (22) such that the vibration-proofing member is interposed between the tank body and the vehicle body (24). The installing member has a seat (22a) fixed to the tank body and an engaging portion (22b) engaged with the vibration-proofing member.

USE - For reducing vibration of motor vehicle fuel tank.

ADVANTAGE - Enables vibration-proofing member to be attached to tank body with reduced man-hours.

DESCRIPTION OF DRAWING(S) - The drawing shows an expanded view of a part of the fuel tank.

Tank body 11

Installing member 22

Seat 22a

Engaging portion 22b

Vibration-proofing member 23

Vehicle body 24

Dwg.3/7

FS GMPI

FA AB; GI

MC EPI: Q17-E04 (Vehicle fuel tanks); Q17-N (Vibration reduction)

The Q17-N manual code is applied for all vehicle systems, so it is a very useful tool for searching vehicle mechanical noise/vibration/harshness control/reduction systems.

Below is another patent segment in the area of noise/vibration/harshness reduction. Here the manual code Q18-B01A and the IPC code B60C-005/00 both convey that this patent is for novel inflatable tyre, but as in the previous example, the IPC code doesn't indicate the real focus of this invention, i.e. noise reduction. This aspect is highlighted by the application of Q17-N.

AN 2006-159874 [17] WPINDEX
 DNN N2006-137930 DNC C2006-053477
 TI Pneumatic motor vehicle tire is equipped with hook-and-loop fasteners for attaching sound absorbing material to inner surface of tire.
 DC A95 Q11 Q17
 IN TANNO, A
 PA (YOKO) YOKOHAMA RUBBER CO LTD
 CYC 1
 PI JP 2006044503 A 20060216 (200617)* 8 B60C005-00 ADT JP 2006044503 A JP 2004-229571 20040805
 PRAI JP 2004-229571 20040805
 IC ICM B60C005-00 (Inflatable pneumatic tyres or inner tubes)
 AB JP2006044503 A UPAB: 20060310
 NOVELTY - The pneumatic tire (T) has a hook-and-loop fastener (2A) provided at the tire inner surface (1), and a corresponding hook-and-loop fastener (2B) on a piece of sound absorbing material for attaching it to the tyre inner surface.
 USE - For reducing noise of a pneumatic vehicle tire.
 ADVANTAGE - The pneumatic tire has excellent durability. The sound absorbing material can be simply fastened to and removed from the tire inner surface through the hook-and-loop fasteners.
 DESCRIPTION OF DRAWING(S) - The figure shows the sectional view of the pneumatic tire.
 tire inner surface 1
 hook-and-loop fastener 2A,2B
 sound absorbing material 3
 rim of wheel R
 pneumatic tire T
 Dwg.1/11
 FS CPI GMPI
 FA AB; GI
 MC CPI: A12-T01B

EPI: Q11-B01A (inflatable pneumatic tyres); Q17-N (noise reduction)

Identifying Chemical Patents and Their Applications Using Manual Codes

The Q manual codes can also help highlight mechanical applications, when the novelty is chemical in nature. Only chemical IPC codes are applied to these patents, not reflecting the specific patent application.

The patent below is a patent for a glass laminate. The IPC code C03C only indicates the glass laminate aspect of the invention. However, by adding the Q codes Q17-A07, Q21-D16, and Q25-A03A, the application of the invention is highlighted, in this case, forming windows for vehicles, trains or aircraft.

AN 2006-113533 [12] WPINDEX
 DNN N2006-098255 DNC C2006-040144
 TI Intermediate film for thermal insulation glass laminate, contains antimony doped tin-oxide or tin doped indium oxide microparticles coated on surface with specific organosilicon compound, matrix resin, and plasticizer.
 DC A21 A25 A93 A95 L01 Q17 Q21 Q25
 IN FUKAYA, S; HATTA, B
 PA (SEKI) SEKISUI CHEM IND CO LTD
 CYC 1
 PI JP 2006021950 A 20060126 (200612)* 14 C03C027-12
 ADT JP 2006021950 A JP 2004-201106 20040707
 PRAI JP 2004-201106 20040707
 IC ICM C03C027-12 (forming laminated glass using adhesive to join laminates)
 AB JP2006021950 A UPAB: 20060217
 NOVELTY - The intermediate film contains antimony doped tin-oxide microparticles or tin doped indium oxide microparticles coated on surface with specific organosilicon compound, a matrix resin, and a plasticizer.
 DETAILED DESCRIPTION - The intermediate film contains antimony doped tin-oxide microparticles or tin doped indium oxide microparticles coated on surface with organosilicon compound, a matrix resin, and a plasticizer. The organosilicon compound is of formula: Si(OR₁)_aR₂_b.

R1 = alkyl;

R2 = alkyl, polyoxyalkylene, phenyl, styryl, (meth)acryloxy, epoxy, vinyl, isocyanate, mercapto, or ureido group; and

a, b = 1-3 such that a+b=4.

An INDEPENDENT CLAIM is included for glass laminate using the intermediate film.

USE - For glass laminates (claimed) used for window glasses, side glass, rear glass, roof glass of motor vehicles, aircraft, and electric trains.

ADVANTAGE - The intermediate film has high heat insulating property and high weather resistance, and provides glass laminate having excellent visible ray transmittance.

Dwg.0/0

TECH JP 2006021950 AUPTX: 20060217

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Property: The visible light permeability (Tv) in the wavelength of 380-780 nm is greater than or equal to 8-7.5C. The infrared transmittance (Tir) in 780-2100 nm, is less than or equal to 70-30C (C less than or equal to 2.33) or Tir less than or equal to 5(C) (C greater than 2.33), where C is the concentration of microparticles in the intermediate film. The yellow index value change (DeltaY1) is less than or equal to 0, and the visible light transmittance (DeltaTv) at the time of irradiating for 300 hours, is greater than or equal to 0.

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Compound: The organosilicon compound is aromatic organosilicon compound.

FS CPI GMPI

FA AB

MC CPI: A12-R04; A12-T04A; L01-G04C; L01-H05; L01-L01; L01-L02

EPI: Q17-A07 (vehicle windows); Q21-D16 (railway train windows); Q25-A03A (aircraft windows)

Searching Using Engine/Fuel Type Manual Codes

The Q manual codes can also highlight other applications such as engine/fuel type. Some of these are:

Q51-D	Engine/fuel type
Q51-D01	Petrol/gasoline
Q51-D03	Diesel
Q51-D05	Mixed fuels
Q51-D07	Single unconventional fuel
Q51-D07A	Gaseous fuel
Q51-D07C	Bio-fuel; Alcohol

Below is a patent segment for a gaseous fuel (hydrogen) storage container for a fuel cell or internal combustion engine driven vehicle.

AN 2006-027459 [03] WPINDEX

CR 2005-131791 [14]

DNN N2006-023926

TI Hydrogen storage container for fuel cell or IC engine driven vehicle, has valve assembly routing coolant lines to heat exchanger in dispensing mode, and routing coolant lines to another heat exchanger in refueling mode.

DC Q17 Q19 Q51 Q75

IN FINAMORE, P

PA (FINA-I) FINAMORE P

CYC 1

PI US 2005268647 A1 20051208 (200603)* 12 F25J001-00

ADT US 2005268647 A1 CIP of US 2003-628221 20030728, US 2005-177858 20050708

PRAI US 2005-177858 20050708; US 2003-628221 20030728

IC ICM F25J001-00 (Processes or apparatus for liquefying or solidifying gases or gaseous mixtures)

AB US2005268647 A UPAB: 20060130

NOVELTY - The container has an outer shell (18) with an inlet for inputting hydrogen gas, and an outlet (28) for outputting the hydrogen gas. A heat pump type thermal management controller determines whether the container is in a dispensing mode or in a refueling mode. A valve assembly (22) routes coolant lines to a heat exchanger in the dispensing mode, and routes the coolant lines to another heat exchanger in the refueling mode.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method for storing hydrogen.

USE - Used for storing hydrogen, in a fuel cell vehicle or an IC engine vehicle.

ADVANTAGE - The valve assembly routes the coolant lines to the heat exchanger in the dispensing mode, and routes the coolant lines to another heat exchanger in the refueling mode, thus efficiently dissipating the thermal energy generated during the refueling, and hence reducing the fueling or refueling time to add hydrogen to the storage container of the vehicle.

DESCRIPTION OF DRAWING(S) - The drawing shows a cross section view of a hydrogen storage container.

Outer shell 18

Conductive liner 20

Valve assembly 22, 24

Inlet opening 26

Outlet opening 28

Dwg. 1/9

FS GMPI

FA AB; GI

MC EPI: J06-B02 (Vessels not under pressure); J06-B03 (Filling vessels with gases); J06-B05 (discharging gases from vessels not under pressure); J06-B07 (vessel details); Q17-E04 (vehicle fuel tanks); Q19-P (electric/fuel cell vehicle); Q51-D07A (gaseous fuelled engine); Q51-H01X (IC engine fuel heating/cooling); X16-C15C (fuel cell fuel storage facility); X21-A01F (fuel cell vehicle); X21-B01 (fuel cell supply); X22-A02 (IC engine fuel systems)

Here the IPC code F25J001-00 is a bit misleading, as the hydrogen isn't solidified but absorbed in a metal hydride, covered by the J06 materials IPC codes. By adding the manual codes Q17 and Q51, the fuel tank and gaseous fuel aspects are highlighted. A more precise search result is achieved, and the problems associated with text searching due to the use of different language by the author, e.g. hydrogen, natural gas, LPG, liquefied petroleum gas etc., are avoided.

Below is a patent segment for an internal combustion engine piston. Even though the IPC codes and the Q manual codes convey similar information for the piston aspect, the manual codes applied also highlight that this is specifically for a diesel engine.

AN 2006-155715 [16] WPIDS

DNN N2006-134430

TI Piston for diesel engine, has piston head, pin bosses and piston skirt cast as single piece from steel.

DC Q51

IN MATSUO, E H; ZHU, X

PA (MATS-I) MATSUO E H; (ZHUX-I) ZHU X; (FEDM) FEDERAL-MOGUL CORP

CYC 111

PI WO 2006014741 A2 20060209 (200616)* EN 12 F16J001-00

RW: AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IS IT
KE LS LT LU LV MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ
UG ZM ZW

W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE
DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG
KM KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NG NI
NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SM SY TJ TM TN TR TT
TZ UA UG US UZ VC VN YU ZA ZM ZW

US 2006037471 A1 20060223 (200616) F16J001-00

ADT WO 2006014741 A2 WO 2005-US25751 20050721; US 2006037471 A1 Provisional US
2004-589779P 20040721, US 2005-185413 20050720

PRAI US 2005-185413 20050720; US 2004-589779P 20040721

IC ICM F16J001-00 (pistons); F16J001-04 (guiding parts for pistons)

ICS F01B031-00 (reciprocating engine components); F02F003-00 (pistons)
 AB WO2006014741 A UPAB: 20060308
 NOVELTY - The piston consists of a piston head formed with a combustion bowl and an annular ring belt along with an annular oil gallery. A pair of pin bosses that have aligned pin bores are formed depending from the piston head. The piston is also formed with a piston skirt. The piston head, the pin bosses and the piston skirt are cast as a single piece from steel.
 USE - For being used in heavy duty diesel engines.
 ADVANTAGE - The heating and cyclic loading of combustion are withstood according to the elasticity of steel while forming the piston in a monobloc structure.
 DESCRIPTION OF DRAWING(S) - The figure shows a perspective view of the partly broken away piston.
 piston 10
 head portion 12
 upper wall 14
 combustion bowl 16
 dome-shaped wall 18
 Dwg.1/7
 FS GMPI
 FA AB; GI

MC EPI: Q51-A03B (IC engine piston); Q51-D03 (diesel engine)

The new manual coding in *DWPI* enables researchers not only to rapidly access patent information for mechanical transportation technologies, but also to examine each patent in its applicable context complete with relevant information. New Q manual codes help prevent the need for cumbersome searches and retrieval of irrelevant information, while at the same time ensuring that important details are not excluded. Using manual codes when searching mechanical patents can mean the difference between retrieving comprehensive, focused, and relevant results or sorting through volumes of results sets and compiling only partial results.

Incorporate *DWPI* manual codes into your transportation and related mechanical research and

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