

Quo vadis? New “Q” manual codes for Transportation

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Major innovations occur in all areas of technology. The Derwent Manual Code Classification system has long been recognized as a valuable resource for tracking and searching technology developments in the chemical and electrical technology areas. Those technology areas have now been extended to include innovations in mechanical technology. Here we provide an overview of the enhancements Thomson Scientific is making to classification of Derwent World Patents Index[®] records in Section Q relating to transportation.

Introduction

Loosely translated, “Quo vadis?” means “where are we going?” Wherever it is, it will usually involve some form of transportation, be it by car, plane, train, or by ship.

As part of the ongoing development of our manual coding system, extensive and detailed manual code hierarchies have been developed for sections of the mechanical Derwent Class Q, and are now being applied to patent records. The new mechanical codes cover all areas of transportation – including automotive, aerospace, railway, and shipping technologies, and are applied consistently to relevant patents across all of the countries currently covered in *Derwent World Patents Index[®] (DWPISM)*.

This article reviews the areas covered by the new Q manual codes together with some examples and illustrations of how they are applied.

Coverage

The new manual codes have been introduced within the Transportation sections of Section Q. Specifically this covers the following areas:

Class	Description
Q11	Wheels; tyres; connections
Q12	Suspension
Q13	Powertrain/transmission systems and their control
Q14	Vehicle accessories
Q15	Transporting special loads
Q16	Vehicle servicing; maintenance, cleaning equipment; Vehicle design and manufacture
Q17	Vehicle construction; Fittings; Propulsion arrangements
Q18	Brake systems; Steering systems; Control
Q19	Vehicle applications
Q21	Railways
Q22	Hand/animal drawn vehicles

Q24	Ships; Waterborne vessels; Related equipment
Q25	Aircraft; aviation, cosmonautics
Q51	Internal combustion engines; Reciprocating engines; Rotary engines
Q52	Reaction engines: External combustion; Gas turbines; Rockets
Q53	Positive displacement fluid engines (i.e. driven by fluid)
Q54	Non-positive displacement fluid engines (i.e. driven by fluid)
Q55	Positive displacement fluid machines/pumps/compressors (i.e. for driving fluid)
Q56	Non-positive displacement fluid machines/pumps/compressors (i.e. for driving fluid)
Q57	Fluid pressure actuators; Hydraulic/pneumatics in general
Q61	Fastening elements; Connections
Q62	Shafts and bearings
Q63	Couplings; Clutches; Brakes; Springs; Dampers
Q64	Belts, Chains, Gearing
Q65	Pistons; Cylinders; Packing
Q66	Valves; Taps; Cocks; Vents
Q67	Pipes; Joints; Fittings
Q68	Other engineering elements
Q69	Storing/distributing gas/liquid

A total of 936 new codes have been introduced including, for example;

- Q11-B05 Tyre sidewalls
- Q14-C02 Inflatable occupant restraints (e.g. airbags, knee/side/curtain airbags).

Q is for Quicker...

Improvements in technology for making things go quicker continue apace. There are plenty of new manual codes to track developments in this area including codes for rocket engines (Q52-B03), Pulse jets (Q52-B01), RAM jets (Q52-B02) and SCRAM jets (Q52-B04).

Even the humble internal combustion engine, which has been around for over 100 years, is still being improved with new inventions now being captured in, for example, Q51-A01B (internal combustion engines with multiple cylinders including, in-line 4, V5, straight/V6, V8, W10, V12 etc).

One of the latest developments classified in Q51-A01B is a cam apparatus used for a multiple cylinder engine. The novel aspect of the invention is captured by Q51-E05A (Camshafts; Cams; Eccentrics) for the engine valve control which allows the timing of the engine to be changed quickly:

WPI Acc No: 2006-141305/200615

XRPX Acc No: N06-122009

Cam apparatus used for multiple cylinder engine, has displacement travel length change unit and timing change unit adjust timing and displacement of valve for each cycle of engine

Patent Assignee: MIKUNI KK (MIKN)

Inventor: MURAJI T; NISHIMOTO Y; SHIBATA M

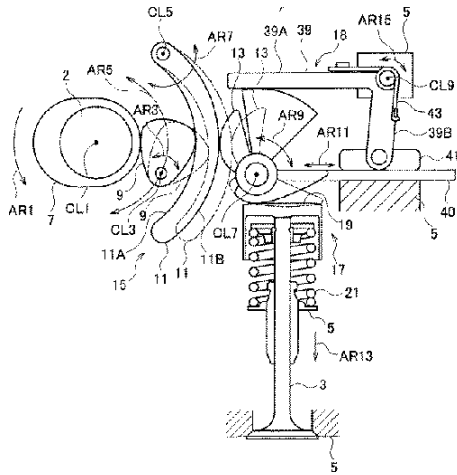
Patent Family:

Patent No Kind Date Applicat No Kind Date Week
JP 2006037830 A 20060209 JP 2004218245 A 20040727 200615 B
Abstract (Basic): JP 2006037830 A

NOVELTY - The displacement travel length change unit (17) and timing change unit (15) adjust the timing and displacement of the valve(3) for each cycle of the engine. The engine valve was displaced by the rotation cam (7). A control unit manages the operation of the displacement travel length change unit and timing change unit.

USE - Used for multiple cylinder engine.

ADVANTAGE - Allows quick changing of the timing displacement travel length of the following node.



Derwent Class: Q51

International Patent Class (Main): F01L-013/00

Manual Codes: Q51-A01B; Q51-E05A

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Q is for Quieter...

A number of new codes for sound-deadening in transport have been introduced including Noise/Vibration/Harshness reduction arrangements reducing noise, vibration and harshness within a vehicle, such as the use of sound deadening materials (Q17-N); and improvements in silencing systems (mufflers) using resonance, sound absorbing materials or baffles (Q51-J01).

A recent example of noise reduction technology is an invention from Japan describing a noise reduction system for pneumatic tires in passenger cars classified in Q17-N:

WPI Acc No: 2006-037823/200604

XRPX Acc No: N06-032627

**Noise reduction system in pneumatic tire in passenger cars,
has noise damper of preset dimension and shape held in tire cavity**

Patent Assignee: SUMITOMO RUBBER IND LTD (SUMR)

Inventor: YUKAWA N

Number of Countries: 038 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20050275277	A1	20051215	US 2005136408	A	20050525	200604 B

EP 1607243	A1	20051221	EP 200511125	A	20050523	200604
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JP 2005350027	A	20051222	JP 2004175808	A	20040614	200604
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Priority Applications (No Type Date): JP 2004175808 A 20040614

Abstract (Basic): US 20050275277 A1

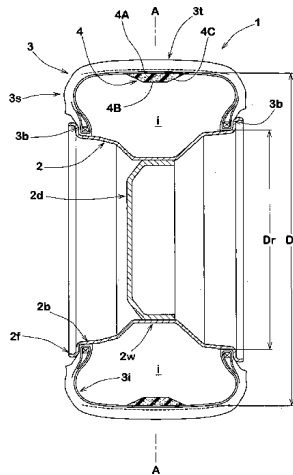
NOVELTY - A noise damper (4) disposed in tire cavity (i) is made of spongy material whose total volume is 0.4-20% of volume in tire cavity.

The maximum thickness of damper between base end and top end surfaces (4A,4B) is 1.0-4.5cm. The width of base end surface is more than the maximum thickness. Each of damper side face (4C) has aslant portion inclined at 30-70degrees with respect to base end surface.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for the low-noise pneumatic tire.

USE - Noise reduction system for pneumatic tire in passenger cars.

ADVANTAGE - The structure of the damper, prevents the damage and separation of the damper at the time of demounting of the tire.



Derwent Class: Q11; Q17

International Patent Class (Main): B60C-005/00; B60C-019/00; B60G-017/02

File Segment: EngPI

Manual Codes: Q11-B01A; Q11-B30; **Q17-N**

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Q is for Quirky...

Amongst the diligent inventors bringing useful inventions and enhancements to technology for the benefit of mankind, there lurks the occasional eccentric, the mad professor with zany ideas beyond the laws of physics as we know it.

An investigation of the new Manual code classifications within Q25 (Aircraft; aviation, cosmonautics) reveals a number of candidates for retrieving inventions of this kind. For example, we may expect to find some interesting technology within Q25-S (Space/cosmonautic vehicles/equipment), specifically Q25-S01C (Space rockets), Q25-S01B (Space shuttles) and Q25-S01D (Extraterrestrial vehicles).

An earlier example of technology that would be classified in Q51-S01B is a rather unusual flying craft invented by J A Avey intended for carrying payloads, such as launching space satellites with reduced pollution (Patent number GB2347912). The craft uses gravity waves to execute free float, due to ions generated when the high frequency carrier wave is modulated. Amazingly, the inventor claims that "the craft is capable of travelling many times faster than speed of light". A triumph of technology over physics! Even more amazingly, perhaps, this is a granted patent and is, apparently, still in force.

Q is for ... Q!

Possibly the zaniest inventor of them all, Q of course was the legendary boffin at MI6 who invented all sorts of big boys' toys for James Bond to play with in defence of Queen and country, including the unforgettable modified Aston Martin DB5 in Goldfinger.



The DB5 proved to be very useful for 007 during the Goldfinger mission. First of all, Bond used the tire slashers to stop Tilly Masterson, so the two could meet up "by accident". Later in a high speed pursuit, Bond made use of the oil slick and smoke screen facilities to run the pursuing cars off the road. Bond also made use of the pop-up bullet-proof shield to block off the enemies gun fire, and used the passenger ejector seat to deal with the small matter of an armed guard sitting next to him.



It is not known whether any of these inventions were patented (and sadly it is too late now that they have been publicly disclosed) but had they been, a number would certainly have been classified in Section Q. The tire slashers, for example, would get Q11-A30 (Other wheel details), and Q17-A20 (Other vehicle constructions/fittings) would be applied for other aspects of the car.

One of the other famous Bond cars was the Lotus Esprit which converted to a submarine in the 1977 film "The Spy Who Loved Me".



In the same vein, an invention that Bond would surely find useful is detailed in a recently published US patent application US2005279878. This describes a multipurpose vehicle that can fly, float or run on land which would certainly be handy for evading capture by enemy agents.

This invention is classified in Q19-R01 for vehicles convertible into boats, Q19-R03 for vehicles convertible into aircraft and Q25-P10 for aircraft convertible into other vehicles. Interestingly, the IPC for this invention is a little less useful (B64D 5/00 Aircraft transported by aircraft, e.g. for release or reberthing during flight).

WPI Acc No: 2006-046292/200605

XRPX Acc No: N06-039787

Amphibian delta wing jet aircraft, has fuselage configured as airplane form, water craft form, snow craft form and land vehicle form, and triangular folding wing panels in which two panels are hingedly attached to body

Patent Assignee: RADO K S (RADO-I)

Inventor: RADO K S

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
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US 20050279878	A1	20051222	US 2004853689	A	20040525	200605 B
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Priority Applications (No Type Date): US 2004853689 A 20040525

Abstract (Basic): US 20050279878 A1

NOVELTY - The aircraft has a fuselage (30) configured as an airplane form, a water craft form, a snow craft form and a land vehicle form. A body tapers along a longitudinal axis and houses a jet engine and an aft cockpit (18). A hull abuts the body and tapers along a longitudinal axis, and has the characteristic of a lifting body. A set of triangular folding wing panels is provided in which two panels are hingedly attached to the body.

USE - Amphibian delta wing jet aircraft.

ADVANTAGE - The two triangular folding wing panels are hingedly attached to the lifting shape body, which incorporates a W-shaped hull in it`s cross section of the fuselage so that the craft operates efficiently as an aircraft when flying through the air with wings in a fully unfolded extended position.

DESCRIPTION OF DRAWING(S) - The drawing shows a diagrammatic top plan view of a craft with wings in a fully folded position as they would be when the craft is configured to travel on the earth`s surface, that is water, marshlands, roadways and snow.

Pair of wings (12)

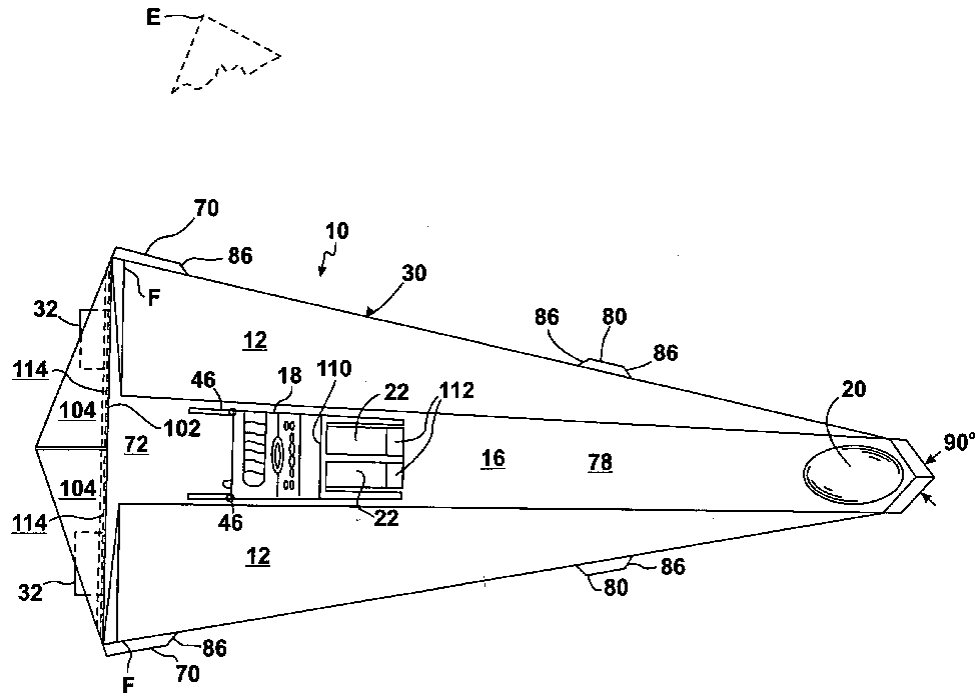
Aft cockpit (18)

Bow cockpit (20)

Air intake openings (22)

Fuselage (30)

pp; 12 DwgNo 1/7



Derwent Class: Q19; Q25
International Patent Class (Main): B64D-005/00
File Segment: EngPI
Manual Codes: Q19-R01; Q19-R03; Q25-A01; Q25-A02; Q25-P04;
Q25-P10

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Conclusion

Wherever your travels may take you, the route for navigating your way through inventions in the transportation area has now been significantly improved by the introduction of Derwent Manual Codes in Section Q.