

SECTION B — PERFORMING OPERATIONS; TRANSPORTING

B61 RAILWAYS

B61L GUIDING RAILWAY TRAFFIC; ENSURING THE SAFETY OF RAILWAY TRAFFIC (power supply lines for electrically propelled vehicles B60M; arrangement of signalling devices, the mounting or supporting thereof or circuits therefor, for vehicles in general B60Q; brakes or auxiliary equipment B61H, B61K; point or crossing construction E01B; insulated rail joints E01B 11/54; optical devices in general G02; controlling in general G05; electric communication technique H04)

Note(s)

This subclass covers:

- devices along the route interacting with trains;
- signals;
- operation of points and signals;
- interlocking;
- block systems;
- level crossings.

Subclass index

DEVICES ALONG THE ROUTE ACTUATED BY, OR ACTING ON, THE TRAIN AT ITS PASSAGE.....1/00, 3/00
RAILWAY SIGNALLING, SWITCHING, BLOCKING, AND INTERLOCKING

Signals

per se, local operation mechanisms; remote control; control by passage of vehicles.....5/00, 7/00, 13/00

Points

local operation mechanisms; remote control; control by passage of vehicles.....5/00, 7/00, 11/00

switching systems of classification yards.....17/00

points and signals interlocking by a single device.....19/00

Scotch-blocks: local operation mechanisms; remote control.....5/00, 7/00

Station blocking.....21/00

TRAFFIC

Central control systems; recording and indicating traffic data; self-signalling.....27/00, 25/00, 15/00

Safety: means concerning railway traffic; protection of road crossings.....23/00, 29/00

ILLUMINATION OF POINTS, FORM SIGNALS, AND GATES.....9/00

SUBJECT MATTER NOT PROVIDED FOR IN OTHER GROUPS OF THIS SUBCLASS.....99/00

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| <p>1/00 Devices along the route controlled by interaction with the vehicle or vehicle train (detonators B61L 5/20; operation of points or signals by passage of the vehicle B61L 11/00, B61L 13/00; central traffic control systems controlled by train B61L 27/04; operation of gates, or gates and signals, by approaching vehicle B61L 29/18)</p> <p>1/02 • Electric devices associated with track</p> <p>1/04 • • mechanically actuated by a part of the vehicle</p> <p>1/06 • • actuated by deformation of rail; actuated by vibration in rail</p> <p>1/08 • • magnetically actuated; electrostatically actuated</p> <p>1/10 • • actuated by electromagnetic radiation; actuated by particle radiation</p> <p>1/12 • Electric devices associated with overhead trolley wires</p> <p>1/14 • Devices for indicating the passing of the end of the vehicle or vehicle train</p> <p>1/16 • Devices for counting axles; Devices for counting vehicles (counting moving objects in general G06M)</p> | <p>1/18 • Railway track circuits (automatically-operated track circuits specially adapted for section blocking for controlling traffic B61L 23/00; rail joints E01B 11/00)</p> <p>1/20 • Safety arrangements for preventing or indicating malfunction of the device, e.g. by leakage current, by lightning</p> |
| | <p>3/00 Devices along the route for controlling devices on the vehicle or vehicle train, e.g. to release brake, to operate a warning signal</p> <p>3/02 • at selected places along the route, e.g. intermittent control</p> <p>3/04 • • controlling mechanically</p> <p>3/06 • • controlling by electromagnetic or particle radiation, e.g. by light beam (using radio waves B61L 3/12)</p> <p>3/08 • • controlling electrically</p> <p>3/10 • • • using current passing between devices along the route and devices on the vehicle train</p> |

- 3/12 • • • using magnetic or electrostatic induction; using radio waves
- 3/14 • • to cut-off the power supply to traction motors of electrically-propelled vehicles
- 3/16 • Continuous control along the route
- 3/18 • • using electric current passing between devices along the route and devices on the vehicle or vehicle train
- 3/20 • • • employing different frequencies or coded pulse groups
- 3/22 • • using magnetic or electrostatic induction; using electromagnetic radiation
- 3/24 • • • employing different frequencies or coded pulse groups

- 5/00 Local operating mechanisms for points or track-mounted scotch-blocks** (track-mounted scotch-blocks per se B61K); **Visible or audible signals; Local operating mechanisms for visible or audible signals** (B61L 11/00 takes precedence)
- 5/02 • Mechanical devices for operating points or scotch-blocks
- 5/04 • Fluid-pressure devices for operating points or scotch-blocks
- 5/06 • Electric devices for operating points or scotch-blocks
- 5/08 • Underground actuating arrangements, e.g. for tramways
- 5/10 • Locking mechanisms for points; Means for indicating the setting of points
- 5/12 • Visible signals
- 5/14 • • Form signals, e.g. semaphore arms
- 5/16 • • Local operating mechanisms for form signals
- 5/18 • • Light signals; Mechanisms associated therewith, e.g. blinders
- 5/20 • Audible signals, e.g. detonator
- 5/22 • • Devices for initiating the release of detonators in a certain position of a signal
- 5/24 • • Replacement of detonators

- 7/00 Remote control of local operating means for points, signals, or track-mounted scotch-blocks** (B61L 11/00 takes precedence; interlocking arrangements B61L 19/00)
- 7/02 • using mechanical transmission, e.g. wire, lever
- 7/04 • using fluid-pressure transmission
- 7/06 • using electrical transmission
- 7/08 • • Circuitry
- 7/10 • • • for light signals, e.g. for supervision, back-signalling

- 9/00 Illumination specially adapted for points, form signals, or gates** (lighting in general F21)
- 9/02 • non-electric
- 9/04 • electric

- 11/00 Operation of points from the vehicle or by the passage of the vehicle**
- 11/02 • using mechanical interaction between vehicle and track
- 11/04 • • Trailable point locks
- 11/06 • • with fluid-pressure transmission
- 11/08 • using electrical or magnetic interaction between vehicle and track

- 13/00 Operation of signals from the vehicle or by the passage of the vehicle**
- 13/02 • using mechanical interaction between vehicle and track
- 13/04 • using electrical or magnetic interaction between vehicle and track

- 15/00 Indicators provided on the vehicle or vehicle train for signalling purposes**
- 15/02 • Head or tail indicators, e.g. light

- 17/00 Switching systems for classification yards** (rail brakes B61K)
- 17/02 • Details, e.g. indicating degree of track filling

- 19/00 Arrangements for interlocking between points and signals by means of a single interlocking device** (station block arrangements B61L 21/00)
- 19/02 • Interlocking devices having mechanical or fluid-pressure operation
- 19/04 • • Details, e.g. hand lever, back-signalling device
- 19/06 • Interlocking devices having electrical operation
- 19/08 • • Special arrangements for power supply for interlocking devices
- 19/10 • • with mechanical locks
- 19/12 • • • Details
- 19/14 • • with electrical locks
- 19/16 • • • Details

- 21/00 Station blocking between signal boxes in one yard** (interlocking between points and signals by means of a single interlocking device B61L 19/00)
- 21/02 • Mechanical locking and release of the route; Repeat locks; Coupling of semaphores
- 21/04 • Electrical locking and release of the route; Electrical repeat locks
- 21/06 • Vehicle-on-line indication; Monitoring locking and release of the route
- 21/08 • Order transmission and reception arrangements for giving or withholding permission
- 21/10 • Arrangements for trains which are closely following one another (automatic central traffic control systems B61L 27/04)

- 23/00 Control, warning or like safety means along the route or between vehicles or vehicle trains [4]**
- 23/02 • for indicating along the route the failure of brakes
- 23/04 • for monitoring the mechanical state of the route
- 23/06 • for warning men working on the route
- 23/08 • for controlling traffic in one direction only (station blocking between signal boxes in one yard B61L 21/00)
- 23/10 • • manually operated
- 23/12 • • partly operated by train
- 23/14 • • automatically operated
- 23/16 • • • Track circuits specially adapted for section blocking
- 23/18 • • • specially adapted for maintaining a safe distance between vehicles or vehicle trains depending upon speed and traffic density [1, 2006.01]
- 23/20 • • • with transmission of instructions to stations along the route
- 23/22 • for controlling traffic in two directions over the same pair of rails (station blocking between signal boxes in one yard B61L 21/00)
- 23/24 • • using token systems, e.g. train staffs, tablets
- 23/26 • • with means for actuating signals from the vehicle or by passage of the vehicle

- 23/28 • • using non-automatic blocking from a place along the route
- 23/30 • • using automatic section blocking
- 23/32 • • • with provision for the blocking of passing sidings
- 23/34 • for indicating the distance between vehicles or vehicle trains by the transmission of signals therebetween [4]

- 25/00 Recording or indicating positions or identities of vehicles or vehicle trains or setting of track apparatus**
- 25/02 • Indicating or recording positions or identities of vehicles or vehicle trains
- 25/04 • • Indicating or recording train identities
- 25/06 • Indicating or recording the setting of track apparatus, e.g. of points, of signals
- 25/08 • • Diagrammatic displays

- 27/00 Central traffic control systems**
- 27/02 • Manual systems
- 27/04 • Automatic systems, e.g. controlled by train; Change-over to manual control

- 29/00 Safety means for rail/road crossing traffic**

- 29/02 • Guards or obstacles for preventing access to the route (cattle guards connected to the permanent way E01B 17/00)
- 29/04 • Gates for level crossings
- 29/06 • • yielding to vehicles in one direction but operated in a different direction
- 29/08 • Operation of gates; Combined operation of gates and signals
- 29/10 • • Means for securing gates in their desired position
- 29/12 • • Manual operation
- 29/14 • • • mechanically
- 29/16 • • • electrically
- 29/18 • • Operation by approaching rail vehicle or rail vehicle train
- 29/20 • • • mechanically
- 29/22 • • • electrically
- 29/24 • Means for warning road traffic that a gate is closed or closing, or that rail traffic is approaching, e.g. for visible or audible warning
- 29/26 • • mechanically operated
- 29/28 • • electrically operated
- 29/30 • • • Supervision, e.g. monitoring arrangements
- 29/32 • • • Timing, e.g. advance warning of approaching train

- 99/00 Subject matter not provided for in other groups of this subclass [2006.01]**