

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

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)

1/02 • Electric devices associated with track

1/04 • • mechanically actuated by a part of the vehicle

1/06 • • actuated by deformation of rail; actuated by vibration in rail

1/08 • • magnetically actuated; electrostatically actuated

1/10 • • actuated by electromagnetic radiation; actuated by particle radiation

1/12 • Electric devices associated with overhead trolley wires

1/14 • Devices for indicating the passing of the end of the vehicle or vehicle train

1/16 • Devices for counting axles; Devices for counting vehicles (counting moving objects in general G06M)

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)

1/20 • Safety arrangements for preventing or indicating malfunction of the device, e.g. by leakage current, by lightning

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

3/02 • at selected places along the route, e.g. intermittent control

3/04 • • controlling mechanically

3/06 • • controlling by electromagnetic or particle radiation, e.g. by light beam (using radio waves B61L 3/12)

3/08 • • controlling electrically

3/10 • • • using current passing between devices along the route and devices on the vehicle train

3/12	• • • using magnetic or electrostatic induction; using radio waves	13/02	• using mechanical interaction between vehicle and track
3/14	• • to cut-off the power supply to traction motors of electrically-propelled vehicles	13/04	• using electrical or magnetic interaction between vehicle and track
3/16	• Continuous control along the route	15/00	Indicators provided on the vehicle or vehicle train for signalling purposes
3/18	• • using electric current passing between devices along the route and devices on the vehicle or vehicle train	15/02	• Head or tail indicators, e.g. light
3/20	• • • employing different frequencies or coded pulse groups	17/00	Switching systems for classification yards (rail brakes B61K)
3/22	• • using magnetic or electrostatic induction; using electromagnetic radiation	17/02	• Details, e.g. indicating degree of track filling
3/24	• • • employing different frequencies or coded pulse groups	19/00	Arrangements for interlocking between points and signals by means of a single interlocking device (station block arrangements B61L 21/00)
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)	19/02	• Interlocking devices having mechanical or fluid-pressure operation
5/02	• Mechanical devices for operating points or scotch-blocks	19/04	• • Details, e.g. hand lever, back-signalling device
5/04	• Fluid-pressure devices for operating points or scotch-blocks	19/06	• Interlocking devices having electrical operation
5/06	• Electric devices for operating points or scotch-blocks	19/08	• • Special arrangements for power supply for interlocking devices
5/08	• Underground actuating arrangements, e.g. for tramways	19/10	• • with mechanical locks
5/10	• Locking mechanisms for points; Means for indicating the setting of points	19/12	• • • Details
5/12	• Visible signals	19/14	• • with electrical locks
5/14	• • Form signals, e.g. semaphore arms	19/16	• • • Details
5/16	• • • Local operating mechanisms for form signals	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)
5/18	• • Light signals; Mechanisms associated therewith, e.g. blinders	21/02	• Mechanical locking and release of the route; Repeat locks; Coupling of semaphores
5/20	• Audible signals, e.g. detonator	21/04	• Electrical locking and release of the route; Electrical repeat locks
5/22	• • Devices for initiating the release of detonators in a certain position of a signal	21/06	• Vehicle-on-line indication; Monitoring locking and release of the route
5/24	• • Replacement of detonators	21/08	• Order transmission and reception arrangements for giving or withholding permission
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)	21/10	• Arrangements for trains which are closely following one another (automatic central traffic control systems B61L 27/04)
7/02	• using mechanical transmission, e.g. wire, lever	23/00	Control, warning or like safety means along the route or between vehicles or vehicle trains [4]
7/04	• using fluid-pressure transmission	23/02	• for indicating along the route the failure of brakes
7/06	• using electrical transmission	23/04	• for monitoring the mechanical state of the route
7/08	• • Circuitry	23/06	• for warning men working on the route
7/10	• • • for light signals, e.g. for supervision, back-signalling	23/08	• for controlling traffic in one direction only (station blocking between signal boxes in one yard B61L 21/00)
9/00	Illumination specially adapted for points, form signals, or gates (lighting in general F21)	23/10	• • manually operated
9/02	• non-electric	23/12	• • partly operated by train
9/04	• electric	23/14	• • automatically operated
11/00	Operation of points from the vehicle or by the passage of the vehicle	23/16	• • • Track circuits specially adapted for section blocking
11/02	• using mechanical interaction between vehicle and track	23/18	• • • specially adapted for maintaining a safe distance between vehicles or vehicle trains depending upon speed and traffic density [1, 2006.01]
11/04	• • Trailable point locks	23/20	• • • with transmission of instructions to stations along the route
11/06	• • with fluid-pressure transmission	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)
11/08	• using electrical or magnetic interaction between vehicle and track	23/24	• • using token systems, e.g. train staffs, tablets
13/00	Operation of signals from the vehicle or by the passage of the vehicle	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	29/02	• Guards or obstacles for preventing access to the route (cattle guards connected to the permanent way E01B 17/00)
23/30	• • using automatic section blocking	29/04	• Gates for level crossings
23/32	• • • with provision for the blocking of passing sidings	29/06	• • yielding to vehicles in one direction but operated in a different direction
23/34	• for indicating the distance between vehicles or vehicle trains by the transmission of signals therebetween [4]	29/08	• Operation of gates; Combined operation of gates and signals
25/00	Recording or indicating positions or identities of vehicles or vehicle trains or setting of track apparatus	29/10	• • Means for securing gates in their desired position
25/02	• Indicating or recording positions or identities of vehicles or vehicle trains	29/12	• • Manual operation
25/04	• • Indicating or recording train identities	29/14	• • • mechanically
25/06	• Indicating or recording the setting of track apparatus, e.g. of points, of signals	29/16	• • • electrically
25/08	• • Diagrammatic displays	29/18	• • Operation by approaching rail vehicle or rail vehicle train
27/00	Central traffic control systems	29/20	• • • mechanically
27/02	• Manual systems	29/22	• • • electrically
27/04	• Automatic systems, e.g. controlled by train; Change-over to manual control	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
29/00	Safety means for rail/road crossing traffic	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]