

35 Hoisting equipment**35 (IPC: B66) Hoisting; Lifting; Hauling****35a Elevators****35a (IPC: B66B) Elevators****35b Cranes****35b (IPC: B66C) Cranes; Load-engaging elements or devices for cranes, capstans, winches, or tackles****35c Winches, blocks and tackles****35c (IPC: B66D) Capstans; Winches; Tackles; Hoists****35d Hoisting devices: skids, jacks, sack lifters, load lifting implements****35d (IPC: B66F) Hoisting, lifting, or hauling, not otherwise provided for****35a Elevators****Elevators in buildings, etc.**

- 35a-1/01 in general
- 35a-1/02 Inclined elevators (blast furnace elevators 18a-6/02)
- 35a-1/03 Special types of elevators for buildings, etc., e.g. water barrel elevators, step-by-step elevators
- 35a-1/04 Mobile elevators
- 35a-1/10 Mechanical controls for elevators
- 35a-1/11 Structural elements of elevators, e.g. rope equalisers, guides, shaft equipment (frames, guides, etc. for mine conveyors 35a-9/05)
- 35a-1/12 Safety devices against accidents in operation, e.g. against fire (safety devices for mine conveyors 35a-22)
- 35a-1/13 Overload protection, weighing and registration devices
- 35a-1/14 Prime movers
- 35a-1/15 Hoisting engine brakes
- 35a-1/16 Terminal disengagement
- 35a-1/17 Slack rope controllers
- 35a-2 Hydraulic elevators
- 35a-3 Reversible elevators
- 35a-4 Builders' elevators (builders' cranes 35b-1/40 – 35b-1/43)
- 35a-5 Mail elevators (various equipment conveying mail in houses 81e-158)
- 35a-6 Step-type escalators
- 35a-7 Passenger elevators of the endless conveyor type (endless elevators for packages, etc. 81e-25 – 81e-41)
- 35a-8 Driving-pulley elevators (mine conveying equipment with driving pulley 35a-10)

Mine conveying elevators

- 35a-9/01 Shaft hoist drives (controls 35a-22)
- 35a-9/02 Mine conveying elevators with cars
- 35a-9/03 Mine conveying elevators with buckets
- 35a-9/04 Hoisting drums, especially adjustable devices (winches in general 35c)
- 35a-9/05 Hoist frames (structural design 37f-7/17), guide rails, etc. (elevator guides 35a-1/11)
- 35a-9/06 Hoisting cables and hoisting chains (5a-32/60; 47d; 73)
- 35a-9/07 Installation and replacement of cables

35a-9/08	Intermediate apparatus
35a-9/09	Pivoting platforms
35a-9/10	Car stops in the shaft
35a-9/11	Car stops on the cage (car stops for the mining industry 5d-10)
35a-9/12	Car pushers
35a-9/13	Hoisting cage loading in general
35a-9/14	Devices for the automatic return of empty mine cars from the dumper to the shaft
35a-9/15	Car conveyors with tiltable platforms
35a-9/16	Unusual mine hoists (bucket conveyors 35a-9/03)
35a-9/17	Hoisting with ground rope or other means of weight equalisation
35a-9/18	Miscellaneous equipment in hoist shafts
35a-10	Vertical hoisting with driving pulley for mine conveying installation (driving pulley elevators for buildings 35a-8; catches for broken cable ends 35a-6/14)
35a-11	Hoisting cage structures

Catch devices for elevators of all types

35a-12	Eccentric catch devices
35a-13	Wedge catch devices
	Catch devices with spring-actuated bolt
35a-14/01	in general
35a-14/02	Elevator cage braking preceding bolt operation
35a-15	Catch devices with cutting edges
	Miscellaneous catch devices
35a-16/01	in general
35a-16/02	electric
35a-16/03	pneumatic, parachutes, etc.
35a-16/04	with rollers and screw spindles
35a-16/05	with so-called catch cable
35a-16/06	with a special auxiliary cable mounted in the shaft
35a-16/07	with air pump
35a-16/08	with rotary element support
35a-16/09	with centrifugal governor on the elevator car
35a-16/10	with centrifugal governor on the engine or in the shaft
35a-16/11	with catch rails or bolts moving in the shaft
35a-16/12	with relative motion of a part of the elevator car
35a-16/13	depending on counterweight
35a-16/14	for the broken cable end in driving pulley hoisting
35a-16/15	Testing of catch devices
35a-17	Buffers or the like for catching elevator cars

Safety devices and controls for elevators of all types

	Shaft closures for elevators
35a-18/01	with doors or barriers, operated by the elevator cage
35a-18/02	without doors
35a-18/03	with doors, in general
35a-18/04	Electric door-contact controls
35a-18/05	Door-type shaft barriers for mine hoisting installations
35a-18/06	Shaft door actuators
35a-18/07	Closure between controls and shaft door in general
35a-18/08	Closure between lever control and shaft door
35a-18/09	Lock-type door safeties
35a-18/10	Structural design of shaft doors

35a-19	Stop locks for elevators of all types
35a-20	Floor stops for elevators in buildings including fine mechanical adjustment (fine adjustments by electrical means 35a-25/02)
35a-21	Signalling devices for elevators
	Controls and safety devices for mine hoisting engines (14g-3; 14g-5; 21c-57 – 21c-61; 21d1-36; 21d1-60)
35a-22/01	in general
35a-22/02	Mechanical speed regulators
35a-22/03	Electric speed regulators
35a-22/04	Control and safety devices for hoisting winches in warehouse shafts, etc.
35a-23	Maximum speed safety limiters for elevators of all types
35a-24	Depth indicators, indicator dials and similar devices for indicating the position of the elevator car
	Electric controls, switching devices and connections for elevators in buildings, etc,
35a-25/01	in general
35a-25/02	Fine adjustments
35a-25/03	Switches and switching devices for electric elevators
35a-25/04	Push-button controls
35a-25/05	Safety devices against circuit faults
35a-26	Lubricating, cleaning and testing devices for built-in hoisting cables and guides for elevators of all types (5a-32/60; 19a-23; 19a-25/00; 20a; 42k-22/03; 47d; 47e; 73; 81e-41)

35a (IPC: B66B) Elevators (funicular railbound systems with rigid ground-supported tracks and cable traction, e.g. cliff railways, 20a-13; arrangements of ammunition handlers in vessels 65g-3/00; paternoster-type hoists or lifts combined or associated with loading or unloading devices or apparatus 81e; braking or detent devices controlling normal movements of winding drums or barrels 35c; ship-lifting devices 84b; garages for many vehicles with mechanical means for lifting vehicles 37f-5/28; hoists for feeding ammunition or projectiles to launching apparatus or to loading mechanisms 72d-21/01)

Note:

In this subclass, the term "elevator" includes lifts, e.g. for passengers, in, or associated with, buildings or other structures; rope, cable, or chain-operated hoists, e.g. mine cages; escalators and paternoster-type hoists or lifts, other than those which are combined or associated with loading or unloading devices or apparatus.

Common features of elevators

35a-1/00	Control systems of elevators in general (safety devices 35a-5/00; controlling door or gate operation 35a-13/00; systems of general application 42r)
35a-1/02	. Control systems without regulation, i.e. without retroactive action
35a-1/04	. . hydraulic
35a-1/06	. . electric
35a-1/08	. . . with devices, e.g. handles or levers, in the cars or cages for direct control of movements
35a-1/10	. . . specially adapted for mining hoists
35a-1/12	. . . with devices, e.g. handles or levers, located at a control station for direct control of movements, e.g. electric mining-hoist control systems
35a-1/14	. . . with devices, e.g. push-buttons, for indirect control of movements

- 35a-1/16 with means for storing pulses controlling the movements of a single car or cage
- 35a-1/18 with means for storing pulses controlling the movements of several cars or cages
- 35a-1/20 and for varying the manner of operation to suit particular traffic conditions, e.g. "one-way rush-hour traffic"
- 35a-1/22 with means for taking account of delayed calls
- 35a-1/24 . Control systems with regulation, i.e. with retroactive action, for influencing travelling speed, acceleration, or deceleration
- 35a-1/26 . . mechanical
- 35a-1/28 . . electrical (detecting excessive speed 35a-5/04)
- 35a-1/30 . . . effective on driving gear
- 35a-1/32 . . . effective on braking devices
- 35a-1/34 . Details
- 35a-1/36 . . Means for stopping the cars, cages, or skips at predetermined levels
- 35a-1/38 . . . and for returning the controlling handle or lever to its neutral position
- 35a-1/40 . . . and for correct levelling at landings
- 35a-1/42 separate from the main drive
- 35a-1/44 . . . and for taking account of disturbance factors, e.g. variation of load weight
- 35a-1/46 . . Adaptations of switches or switchgear (switches or switchgear in general, applications of switches or switchgear for floor-levelling purpose 21c)
- 35a-1/48 . . . Adaptations of mechanically-operated limit switches (for cranes 35b-13/50; for winding mechanisms 35c-1/56)
- 35a-1/50 . . . with operating or control mechanisms mounted in the car or cage or in the lift well or hoistway
- 35a-1/52 . . . Floor selectors
- 35a-3/00 Applications of devices for indicating or signalling operating conditions (of general application 74)**
- 35a-3/02 . Position or depth indicators
- 35a-5/00 Applications of checking, fault-correcting, or safety devices (to lift doors or gates 35a-13/00)**
- 35a-5/02 . responsive to abnormal operating conditions
- 35a-5/04 . . for detecting excessive speed
- 35a-5/06 . . . electrical
- 35a-5/08 . . for preventing overwinding
- 35a-5/10 . . . electrical
- 35a-5/12 . . in case of rope or cable slack
- 35a-5/14 . . in case of excessive loads
- 35a-5/16 . . Braking or catch devices operating between cars, cages, or skips and fixed guide elements or surfaces in hoistway or well
- 35a-5/18 . . . and applying frictional retarding forces
- 35a-5/20 by means of rotatable eccentrically-mounted members (35a-5/24 takes precedence)
- 35a-5/22 by means of linearly-movable wedges (35a-5/24 takes precedence)
- 35a-5/24 by acting on guide ropes or cables
- 35a-5/26 . . . Positively-acting devices, e.g. latches, knives
- 35a-5/28 . Buffer-stops for cars, cages, or skips
- 35a-7/00 Other common features of elevators**
- 35a-7/02 . Guideways; Guides (arrangements in mine shafts 5c-7/00)
- 35a-7/04 . . Shoes; Rollers
- 35a-7/06 . Arrangements of ropes or cables
- 35a-7/08 . . for connection to the cars or cages, e.g. couplings
- 35a-7/10 . . for equalising rope or cable tension
- 35a-7/12 . Checking, lubricating, or cleaning means for ropes, cables, or guides

Lifts in, or associated with, buildings

- 35a-9/00** **Kinds or types of lifts in, or associated with, buildings or other structures** (characterised by control systems 35a-1/00; apparatus for raising or lowering persons on stages of theatres 77g-5/12)
- 35a-9/02 . actuated mechanically otherwise than by rope or cable
 - 35a-9/04 . actuated pneumatically or hydraulically (platforms for lifting or lowering through short distances 35d-7/00)
 - 35a-9/06 . inclined, e.g. serving blast furnaces
 - 35a-9/08 . . associated with stairways, e.g. for transporting disabled persons
 - 35a-9/10 . Paternoster type (with devices for transferring goods into, or out of, the compartments 81e-4)
 - 35a-9/12 . Escalators or like moving stairways (endless conveyers 81e)
 - 35a-9/14 . . Handrails therefor
 - 35a-9/16 . Lift installations adapted to be shifted from one part of a building or other structure to another part
 - 35a-9/18 . adapted for temporary connection to buildings or other structures for erection purposes
 - 35a-9/20 . Mobile or transportable lifts with liftways supported independently of building or structure

35a-11/00 **Main component parts of lifts in, or associated with, buildings or other structures**

- 35a-11/02 . Cages (doors, gates, or other apparatus controlling access to, or exit from, cages 35a-13/00)
- 35a-11/04 . Driving gear
- 35a-11/06 . . with hoisting rope or cable positively attached to a winding drum
- 35a-11/08 . . with hoisting rope or cable operated by frictional engagement with a winding drum or sheave

35a-13/00 **Doors, gates, or other apparatus controlling access to, or exit from, cages or lift-well landings** (door fittings, locks 68)

- 35a-13/02 . Door or gate operation (of general application 68d)
- 35a-13/04 . . of swinging doors
- 35a-13/06 . . of sliding doors
- 35a-13/08 . . . guided for horizontal movement
- 35a-13/10 . . . by car or cage movement
- 35a-13/12 . . Arrangements for effecting simultaneous opening or closing of cage and landing doors
- 35a-13/14 . . Control systems or devices
- 35a-13/16 . . . Door or gate locking devices controlled or primarily controlled by condition of cage, e.g. movement or position
- 35a-13/18 without manually-operable devices for completing locking or unlocking of doors
- 35a-13/20 Lock mechanisms actuated mechanically by abutments or projections on the cages
- 35a-13/22 . Operation of door or gate contacts
- 35a-13/24 . Safety devices in passenger lifts, not otherwise provided for, for preventing trapping of passengers
- 35a-13/26 . . between closing doors
- 35a-13/28 . . between car or cage and wells
- 35a-13/30 . Constructional features of doors or gates (of interest apart from this application 37g1)

Lifts in hoistways of mines**35a-15/00** **Main component parts of mining-hoist winding devices**

- 35a-15/02 . Rope or cable carriers
- 35a-15/04 . . Friction sheaves; "Koepe" pulleys
- 35a-15/06 . . Drums
- 35a-15/08 . Driving gear

35a-17/00	Hoistway equipment
35a-17/02	. mounted in head-frames (winding towers for mines 37f-15/40)
35a-17/04	. Mining-hoist cars or cages
35a-17/06	. . with tiltable platforms
35a-17/08	. Mining skips
35a-17/10	. . adapted for passenger transport
35a-17/12	. Counterpoises
35a-17/14	. Applications of loading and unloading equipment (of general application 81e)
35a-17/16	. . for loading and unloading mining-hoist cars or cages
35a-17/18	. . . Swinging bridges, e.g. for compensating for differences in level between car or cage and landing
35a-17/20	. . . by moving vehicles into, or out of, the cars or cages
35a-17/22	. . . Securing vehicles in cars or cages
35a-17/24	. . . . mounted on the car or cage
35a-17/26	. . for loading or unloading mining-hoist skips
35a-17/28	. . electrically controlled (for elevators in general 35a-1/06)
35a-17/30	. . . for cars or cages
35a-17/32	. . . for skips
35a-17/34	. Safe lift clips; Keps
35a-17/36	. Gates or other apparatus controlling access to, or exit from, cars, cages, or hoistway landings
35a-19/00	Mining-hoist operation
35a-19/02	. Installing or exchanging ropes or cables
35a-19/04	. Installing or removing mining-hoist cars, cages, or skips
35a-19/06	. Applications of signalling devices (depth indicators 35a-3/02; order telegraphs 74c)

35b**Cranes****Travelling cranes**

35b-1/01	in general
35b-1/02	Mechanical remote control
35b-1/03	Elements, e.g. tracks, traversing gear
35b-1/04	Travelling trolleys with hoisting devices
35b-1/05	Single-rail trolleys with hoisting devices
35b-1/06	Devices for changing the direction of travel of trolleys
35b-1/06	Cable drives for load and trolley
35b-1/08	Cable drives for load and trolley with planetary gear
35b-1/09	Cable drives for load and trolley with endless cable
35b-1/10	Electric remote control of trolley hoisting and travelling mechanisms (suspended electric railways, in general 20a)
35b-1/11	Foundry cranes
35b-1/12	Shipbuilding cranes
35b-1/13	Railroad car and locomotive cranes

Gantry cranes

35b-1/20	in general
35b-1/21	Devices for changing the direction of travel, also for travelling cranes
35b-1/22	Devices for prevention of angular deviations
35b-1/23	Devices for prevention of unintentional travel
35b-1/24	Pivoted support arrangement

Cable cranes

35b-1/30	in general
35b-1/31	Deflecting cable carriers
35b-1/32	Follower cable supports

Building cranes

35b-1/40	in general (building elevators 35a)
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- 35b-1/41 With automatic load pivoting
- 35b-1/42 Individual-section frame structure
- 35b-1/43 Window cranes
- 35b-2/01 Temperley cranes, in general
- 35b-2/02 Hay elevators (45e-30/01; 81e-106)
- Jib cranes, also rotary**
- 35b-3/01 Cranes with fixed jib
- 35b-3/02 Cranes with adjustable jib
- 35b-3/03 Variable-radius jib cranes, in general
- 35b-3/04 Variable-radius jib cranes with horizontal load travel
- 35b-3/05 Vehicle cranes with manual drive
- 35b-3/06 Vehicle cranes with power drive, in general
- 35b-3/07 Wagon cranes with single power source
- 35b-3/08 Railway cranes
- 35b-3/09 Warehouse cranes with vertical and lateral movement of the load
- 35b-3/10 Rotary pillar cranes
- 35b-3/11 Hydraulically driven cranes
- 35b-3/12 Velocipede and mobile wall cranes
- 35b-3/13 Floating cranes (floats for floating cranes 65a1)
- 35b-3/14 Cranes of special types
- 35b-3/15 Cranes with movable counterweights
- 35b-3/16 Safety devices for cranes
- 35b-3/17 Cranes with counting devices, weighing devices, etc., insofar as the crane structure is involved (weighing 42f; counting mechanisms 42p)
- 35b-3/18 Devices for adjusting the load
- 35b-3/19 Jib crane elements, e.g. sluing mechanisms, jib adjusting mechanisms
- 35b-5/01 Special equipment on cranes
- 35b-5/10 Forge cranes
- Devices for grappling or carrying the load**
- 35b-6/01 Load hooks
- 35b-6/02 Claws
- 35b-6/03 Tongs
- 35b-6/04 Grappling devices for stacked goods
- 35b-6/05 Grappling devices for plates
- 35b-6/06 Grappling devices for iron girders
- 35b-6/07 Grappling devices for timber and crates
- 35b-6/08 Grappling devices for shafts and pipes
- 35b-6/09 Grappling devices for sacks
- 35b-6/10 Grappling devices with cables and chains
- 35b-6/11 Lid lifting devices
- 35b-6/12 Grappling devices with expanding arms for use in cavities
- 35b-6/13 Grappling devices for bulk goods, suspensions for hinged and tilting buckets
- 35b-6/14 Trough-type conveyors
- 35b-6/15 Single cable gripping devices
- 35b-6/16 Twin-cable gripping devices
- 35b-6/17 Motor gripping devices
- 35b-6/18 Devices for alternate operation with grapple and hook
- 35b-6/19 Special equipment on grapples
- 35b-6/20 Grips suspended or guided on the jib
- 35b-6/21 Tilting and gripping operation on the same crane
- 35b-6/22 Vacuum gripping devices

- 35b-6/23 Load hoisting magnets
- 35b-6/24 Load hoisting magnets combined with grapplers
- 35b-6/25 Special devices for gripping and carrying the load

Electric equipment for cranes

- 35b-7/01 Crane controls
- 35b-7/02 Braking circuits for reversing operations
- 35b-7/03 Variable-speed controls
- 35b-7/04 Direct-current lowering circuits
- 35b-7/05 Alternating-current lowering circuits
- 35b-7/06 Lowering circuits for current recovery
- 35b-7/07 Circuits preventing lifting during lowering operations with inverse current
- 35b-7/08 Universal electrical equipment for crane operations
- 35b-7/09 Terminal circuits for crane drive mechanisms

Electric controls for grab winches

- 35b-8/01 for single-cable grab winches
- 35b-8/02 for two-cable grab winches with single-motor drive
- 35b-8/03 for two-cable grab winches with two-motor drive
- 35b-8/04 for two-cable grab winches with planetary transmission

35b (IPC: B66C) Cranes; Load-engaging elements or devices for cranes, capstans, winches, or tackles (rope, cable, or chain winding mechanisms, braking or detent devices therefor 35c; specially adapted for nuclear reactors 21g)

Load-engaging elements or devices attached to lifting, lowering, or hauling gear of cranes or adapted for connection therewith

Note:

In groups 35b-1/00 and 35b-3/00 the term "cranes" also covers capstans, winches, or tackles.

- 35b-1/00 Load-engaging elements or devices attached to lifting, lowering gear of cranes, or adapted for connection therewith for transmitting lifting forces to articles or groups of articles** (fastening to cables or ropes 47d-11/00)
- 35b-1/02 . by suction means
 - 35b-1/04 . by magnetic means
 - 35b-1/06 . . electromagnetic
 - 35b-1/08 . . . Circuits therefor (for electromagnets in general 21g-2/01, 21g-2/02)
 - 35b-1/10 . by mechanical means
 - 35b-1/12 . . Slings comprising chains, wires, ropes, or bands; Nets (article side grippers suspended by ropes or chains from crane hooks 35b-1/42)
 - 35b-1/14 . . . Slings with hooks
 - 35b-1/16 . . . Slings with load-engaging platforms or frameworks
 - 35b-1/18 . . . Band-type slings
 - 35b-1/20 . . . specially adapted for handling vehicles
 - 35b-1/22 . . Rigid members, e.g. L-shaped members, with parts engaging the under surface of the loads; Crane hooks
 - 35b-1/24 . . . Single members engaging the loads from one side only
 - 35b-1/26 with means for releasing the loads
 - 35b-1/28 . . . Duplicate, e.g. pivoted, members engaging the loads from two sides
 - 35b-1/30 and also arranged to grip the sides of the loads
 - 35b-1/32 of piled or stacked articles
 - 35b-1/34 . . . Crane hooks
 - 35b-1/36 with means, e.g. spring-biased detents, for preventing inadvertent disengagement of loads
 - 35b-1/38 adapted for automatic disengagement from loads on release of cable tensions (for parachutes 62a3)

- 35b-1/40 formed or fitted with load-measuring or indicating devices
- 35b-1/42 . . Gripping members engaging only the external or internal surfaces of the articles
- 35b-1/44 and applying frictional forces
- 35b-1/46 by inflatable elements
- 35b-1/48 to vertical edge portions of sheets, tubes, or like thin or thin-walled articles
(internally-expanding grippers 35b-1/54)
- 35b-1/50 specially adapted for stripping and handling ingots
- 35b-1/52 and actuated by driving gear thereon
- 35b-1/54 Internally-expanding grippers for handling hollow articles
- 35b-1/56 for handling tubes
- 35b-1/58 and deforming the articles, e.g. tongs for sacks
- 35b-1/60 permanently, e.g. grapples
- 35b-1/62 . . comprising article-engaging members of a shape complementary to that of the
articles to be handled
- 35b-1/64 for T-section beams, I-section beams or girders
- 35b-1/66 for engaging holes, recesses, or abutments on articles specially provided for
facilitating handling thereof
- 35b-1/68 . . mounted on, or guided by, jibs (jibs 35b-23/64)

35b-3/00 Load-engaging elements or devices attached to lifting or lowering gear of cranes or adapted for connection therewith and intended primarily for transmitting lifting forces to loose materials; Grabs (buckets and other containers 81c, pallets 81e-119; dredges equipped with grabs 84d)

- 35b-3/02 . Bucket grabs
- 35b-3/04 . Tine grabs
- 35b-3/06 . Grabs actuated by a single rope or chain
- 35b-3/08 . . and having tipping rings
- 35b-3/10 . . and having buckets opening automatically upon the grab being lowered on to the
dump of material
- 35b-3/12 . Grabs actuated by two or more ropes
- 35b-3/14 . Grabs opened or closed by driving motors thereon
- 35b-3/16 . . by fluid motors
- 35b-3/18 . . by electric motors
- 35b-3/20 . mounted on, or guided by, jibs (jibs 35b-23/64)

Other common features; Details

35b-5/00 Base-supporting structures with legs

- 35b-5/02 . Fixed or travelling bridges or gantries, i.e. elongated structures of inverted-L-shape
or of inverted-U-shape
- 35b-5/04 . . with runways or tracks supported for movements relative to bridge or gantry
- 35b-5/06 . . with runways or tracks supported for lateral swinging movements
- 35b-5/08 . . with vertically-inclinable runways or tracks
- 35b-5/10 . Portals, i.e. essentially circular or square platforms with three or more legs specially
adapted for supporting slewing jib cranes

35b-6/00 Girders, or track-supporting structures, specially adapted for cranes but not restricted to a specific type of crane (base-supporting structures with legs 35b-5/00; girders in general 47a5, 37b)

35b-7/00 Runways, tracks, or trackways for trolleys or cranes

- 35b-7/02 . for underhung trolleys or cranes
- 35b-7/04 . . Trackway suspension
- 35b-7/06 on supports constructed for easy erection, e.g. transportable
- 35b-7/08 . Constructional features of runway rails or rail mountings (of general application 19a)
- 35b-7/10 . Arrangements or devices for extending runways or tracks
- 35b-7/12 . Devices for changing direction of travel or for transferring from one runway to
another; Crossings; Combinations of tracks of different gauges (transfer devices of
general application 19a)
- 35b-7/14 . . Runway interlocking devices

35b-7/16	. Devices specially adapted for limiting trolley or crane travel; Arrangements of buffer-stops (buffer-stops of interest apart from this application 20g-8; limit-switch arrangements, limit circuits 35c-1/56)
35b-9/00	Travelling gear incorporated in, or fitted to, trolleys or cranes (for dredgers 84d)
35b-9/02	. for underhung trolleys or cranes
35b-9/04	. to facilitate negotiation of curves
35b-9/06	. for more than one rail gauge
35b-9/08	. Runners; Runner bearings (wheels for railbound vehicles 20d)
35b-9/10	. Undercarriages or bogies, e.g. end carriages, end bogies
35b-9/12	. . with load-distributing means for equalising wheel pressure
35b-9/14	. Trolley or crane travel drives (rope, cable, or chain drives for loads or trolleys 35b-11/16; control 35b-13/18)
35b-9/16	. with means for maintaining alignment between wheels and track
35b-9/18	. with means for locking trolleys or cranes to runways or tracks to prevent inadvertent movements
35b-11/00	Trolleys or crabs, e.g. operating above runways (winch mechanisms 35c)
35b-11/02	. with operating gear or operator's cabin suspended, or laterally offset, from runway or track
35b-11/04	. . Underhung trolleys (power-operated hoists with driving motor and drum or barrel contained in a common housing 35c-3/20)
35b-11/06	. . . running on monorails (overhead railway systems 20a)
35b-11/08	. with turntables
35b-11/10	. . equipped with jibs (jib cranes 35b-23/00)
35b-11/12	. having hoisting gear adapted to special load-engaging elements and not otherwise provided for
35b-11/14	. adapted to operate on crane or bridge structure of particular configuration, e.g. on reinforced concrete girders of rectangular cross-section
35b-11/16	. Rope, cable, or chain drives for trolleys; Combinations of such drives with hoisting gear
35b-11/18	. . comprising endless ropes or cables
35b-11/20	. . Arrangements, e.g. comprising differential gears, enabling simultaneous or selective operation of travelling and hoisting gear; Arrangements using the same rope or cable for both travelling and hoisting, e.g. in Temperley cranes (power transmissions between driving motors and winch drums 35c-1/14)
35b-11/22	. . actuated pneumatically or hydraulically
35b-11/24	. . with means for locating or sustaining the loads or trolleys in predetermined positions; Hay hoists
35b-11/26	. . . Abutments; Stop blocks; End stops
35b-13/00	Other constructional features or details
35b-13/02	. Devices for facilitating retrieval of floating objects, e.g. for recovering craft from water (handling lifeboats 65b; hauling-out waterborne vessels on slipways 65b; winding mechanism controls 35c-1/52)
35b-13/04	. Auxiliary devices for controlling movements of suspended loads, or for preventing cable slack
35b-13/06	. . for minimising or preventing longitudinal or transverse swinging of loads
35b-13/08	. . for depositing loads in desired attitudes or positions
35b-13/10	. . for preventing cable slack (control devices for rope, cable, or chain winding mechanisms, e.g. for controlling tension, 35c-1/40)
35b-13/12	. Arrangements of means for transmitting pneumatic, hydraulic, or electric power to movable parts or devices
35b-13/14	. . to load-engaging elements or motors associated therewith
35b-13/16	. Applications of indicating, registering, or weighing devices (in crane hooks 35b-1/40; in safety gear 35b-15/00; weighing-apparatus 42f; remote indicating in general 74)
35b-13/18	. Control systems or devices (exclusively for rope, cable, or chain winding mechanisms 35c-1/40)
35b-13/20	. . for non-electric drives (transmitting control pulses 35b-13/40)

- 35b-13/22 . . . for electric drives (transmitting control pulses 35b-13/40; systems or devices of general application 21c)
- 35b-13/23 Circuits for controlling the lowering of the load
- 35b-13/24 by dc motors
- 35b-13/26 by ac motors
- 35b-13/28 utilising regenerative braking for controlling descent of heavy loads and having means for preventing rotation of motor in the hoisting direction when load is released
- 35b-13/30 Circuits for braking, traversing, or slewing motors
- 35b-13/32 for operating grab-bucket hoists by means of one or more electric motors used both for hoisting and lowering the loads and for opening and closing the bucket jaws (other aspects of rope, cable, or chain winding mechanisms specially adapted for actuating grab buckets 35c-1/62)
- 35b-13/34 through differential or planetary gearing
- 35b-13/36 Single-motor-drive control systems
- 35b-13/38 Systems controlling independent motors
- 35b-13/40 . . . Applications of devices for transmitting control pulses; Applications of remote control devices (control in general 42r)
- 35b-13/42 Hydraulic transmitters
- 35b-13/44 Electrical transmitters
- 35b-13/46 Position indicators for suspended loads or for crane elements
- 35b-13/48 . . . Automatic control of crane drives for producing a single or repeated working cycle; Programme control
- 35b-13/50 . . . Applications of limit circuits or of limit-switch arrangements (for winding mechanisms 35c-1/56)
- 35b-13/52 . . Details of compartments for driving engines or motors or of operator's stands or cabins
- 35b-13/54 . . . Operator's stands or cabins
- 35b-13/56 Arrangements of handles or pedals
- 35b-15/00** **Safety gear** (for rope, cable, or chain winding mechanisms 35c-1/54)
- 35b-15/02 . . . for retaining load-engaging elements in the event of rope or cable breakage
- 35b-15/04 . . . for preventing collisions, e.g. between cranes or trolleys operating on the same track

Kinds or types of cranes

- 35b-17/00** **Overhead travelling cranes comprising one or more substantially-horizontal girders the ends of which are directly supported by wheels or rollers running on tracks carried by spaced supports**
- 35b-17/02 . . . Adaptations of girders or of track-supporting structures
- 35b-17/04 . . . with lifting beams, e.g. slewable beams, carrying load-engaging elements, e.g. magnets, hooks (constructions of load-engaging elements 35b-1/00, 35b-3/00)
- 35b-17/06 . . . specially adapted for particular purposes, e.g. in foundries, forges; combined with auxiliary apparatus serving particular purposes (35b-17/04 takes precedence)
- 35b-17/08 . . . for charging treatment chambers, e.g. furnaces, kilns, ovens (charging apparatus associated with hearth furnaces for steel manufacture 18b-5/24)
- 35b-17/10 . . . for transporting ladles
- 35b-17/12 . . . for handling workpieces, e.g. ingots, which require to be supported temporarily within, or withdrawn from, a treatment chamber, e.g. tong cranes, soaking-pit cranes, stripper cranes (for manipulating ingots during forging 35b-17/18; ingot grippers 35b-1/50)
- 35b-17/14 Tong cranes with means for moving article-pushers relative to the tongs
- 35b-17/16 Tong cranes with means for turning the tongs about a vertical axis
- 35b-17/18 . . . for manipulating workpieces during forging operations (workpiece manipulators in forging machines 7g-13/10)
- 35b-17/20 . . . for hoisting or lowering heavy load carriers, e.g. freight containers, railway wagons
- 35b-17/22 . . . for hoisting or lowering locomotives
- 35b-17/24 . . . for building ships on slipways
- 35b-17/26 . . . combined with auxiliary apparatus, e.g. log saws, pushers for unloading vehicles, means for shunting railway vehicles

35b-19/00	Cranes comprising trolleys or crabs running on fixed or movable bridges or gantries (35b-17/00 takes precedence; base-supporting structures with legs 35b-5/00; jib cranes 35b-23/00)
35b-19/02	. collapsible
35b-21/00	Cable cranes, i.e. comprising hoisting devices running on aerial cable-ways (rope or cable drives for trolleys, combinations of such drives with hoisting gear 35b-11/16; railway systems 20a; rope or cable winding mechanisms 35c-1/00)
35b-21/02	. with cable-ways supported on framework swingably connected to ground-engaging elements
35b-21/04	. with cable-ways supported at one end or both ends on bodily-movable framework, e.g. framework mounted on rail track
35b-21/06	. . with one end supported on a framework movable in a curved, e.g. circular, path and the other end by a column rotatable around a vertical axis
35b-21/08	. Sag carriers or rope trolleys, suspended or not, e.g. fixed but offering clearance for travelling gear
35b-21/10	. . travelling
35b-23/00	Cranes comprising essentially a beam, boom, or triangular structure acting as a cantilever and mounted for translatory or swinging movements in vertical or horizontal planes or a combination of such movements, e.g. jib cranes, derricks, tower cranes (base-supporting structures with legs 35b-5/00)
35b-23/02	. with non-adjustable and non-inclinable jibs mounted solely for slewing movements
35b-23/04	. with jibs the effective length of which is variable in operation, e.g. longitudinally displaceable, extensible
35b-23/06	. with jibs mounted for jibbing or luffing movements
35b-23/08	. . and adapted to move the loads in predetermined paths
35b-23/10	. . . the paths being substantially horizontal; Level-luffing jib cranes
35b-23/12	. . . . with means for automatically varying the effective length of the hoisting rope or cable
35b-23/14	. . . . with means, e.g. pantograph arrangements, for varying jib configuration
35b-23/16	. with jibs supported by columns, e.g. towers having their lower end mounted for slewing movements
35b-23/18	. specially adapted for use in particular purposes
35b-23/20	. . with supporting couples provided by walls of buildings or like structures
35b-23/22	. . . Window cranes, i.e. adapted to be supported in window openings
35b-23/24	. . . Mobile wall cranes
35b-23/26	. . for use on building sites; constructed, e.g. with separable parts, to facilitate rapid assembly or dismantling, for operation at successively higher levels, for transport by road or rail (with supporting couples provided by walls or buildings 35b-23/20; mounted on vehicles 35b-23/36; jib constructions 35b-23/64)
35b-23/28	. . . constructed to operate at successively higher levels
35b-23/30	. . . . with frameworks composed of telescopic elements
35b-23/32	. . . . Self-hoisting cranes
35b-23/34	. . . Self-erecting cranes, i.e. with hoisting gear adapted for crane erection purposes
35b-23/36	. . mounted on road or rail vehicles; Manually-movable jib cranes for use in workshops; Floating cranes (with pneumatic or hydraulic motors 35b-23/54; vehicle or ship aspects 20, 62, 63, 65)
35b-23/38	. . . with separate prime movers for crane and vehicle
35b-23/40	. . . with a single prime mover for both crane and vehicle
35b-23/42	. . . with jibs of adjustable configuration, e.g. foldable
35b-23/44	. . . Jib cranes adapted for attachment to standard vehicles, e.g. agricultural tractors
35b-23/46	. . . Mobile jib cranes with non-sleuable jibs
35b-23/48	. . . Manually-movable jib cranes for use in workshops
35b-23/50	. . . mounted on railway vehicles, e.g. breakdown cranes
35b-23/52	. . . Floating cranes (floating dredgers 84d)
35b-23/54	. with pneumatic or hydraulic motors, e.g. for actuating jib cranes on tractors
35b-23/56	. . of the reciprocating type

35b-23/58	. arranged to carry-out a desired sequence of operations automatically, e.g. hoisting followed by luffing and slewing
35b-23/60	. Derricks (derricks employing ships' masts 65a)
35b-23/62	. Constructional features or details (of dredgers 84d)
35b-23/64	. . Jibs
35b-23/66	. . . Outer or upper end constructions
35b-23/68	. . . foldable or otherwise adjustable in configuration
35b-23/70	. . . constructed of sections adapted to be assembled to form jibs of various lengths
35b-23/71	. . Masts (masts in general 37f-15/22)
35b-23/72	. . Counterweights or supports for balancing lifting couples
35b-23/74	. . . separate from jib
35b-23/76	. . . and movable to take account of variations of load or of variations of length of jib
35b-23/78	. . . Supports, e.g. outriggers, for mobile cranes
35b-23/80	. . . . hydraulically actuated
35b-23/82	. . Luffing gear
35b-23/84	. . Slewing gear
35b-23/86	. . . hydraulically actuated
35b-23/88	. Safety gear (for cranes in general 35b-15/00; for rope, cable, or chain winding mechanisms 35c-1/54)
35b-23/90	. . Devices for indicating or limiting lifting movement
35b-23/92	. . Snubbers or dash-pots for preventing backwards-swinging of jibs, e.g. in the event of cable or tackle breakage
35b-23/94	. . for limiting slewing movements

35c Winches, blocks and tackles

Winches

35c-1/01	Winches in general
35c-1/02	Winches driven in one direction
35c-1/03	Winches with free drums connectible to the drive
35c-1/04	Winches with gearshifts
35c-1/05	Winches with friction drive
35c-1/06	Capstans
35c-1/07	Anchor capstans
35c-1/08	Towing winches and controls therefor
35c-1/09	Railroad yard switching winches
35c-1/10	Wall winches
35c-1/11	Steam winches
35c-1/12	Multi-drum winches
35c-1/13	Electrically driven winches
35c-1/14	Gas or hydraulically driven winches
35c-1/15	Mechanical control and lever-actuated brakes
35c-1/16	Reversing of winches
35c-1/17	Winch drums provided that the structure thereof is related to the winch as a whole (general 47b-26)
35c-1/18	Drives, insofar as the winch structure is affected thereby
35c-1/19	Cable guides
35c-1/20	Overload safety devices
35c-1/21	Terminal switches for winches
35c-1/22	Other elements

Block and tackle

35c-2/01	Rope pulley blocks
35c-2/02	Chain pulley blocks
35c-2/03	Worm and gear pulley blocks
35c-2/04	Electric pulley blocks

35c-2/05	Support frames for blocks and tackles
	Blocking and braking devices, insofar as the structure thereof is determined by the winch structure
35c-3/01	Blocking devices (in general 47h-4)
35c-3/02	Brakes of common type (brakes for rotary movements, general 47c-17)
35c-3/03	Gas or hydraulic pressure brake controls
35c-3/04	Electric brake controls
35c-3/05	Control of hoisting brakes (brakes for rotary movements, general 47c-17)
35c-3/06	Axial-thrust brakes
35c-3/07	Radial-thrust brakes
35c-3/08	Load-thrust brakes, in general
35c-3/09	Load-thrust brakes, axial
35c-3/10	Load-thrust brakes, radial
35c-3/11	Centrifugal brakes
35c-3/12	Cable brakes
35c-3/13	Safety cranks

35c (IPC: B66D) Capstans; Winches; Tackles, e.g. pulley blocks; Hoists
(winding or unwinding ropes or cables for feeding or storage purposes 47k; rope or cable-winding or unwinding mechanisms for lifts 35a)

Note:

This subclass includes:

- (a) rope, cable, or chain winding or unwinding mechanisms for moving all loads except lift cages, e.g. winches for dredges;**
(b) braking or detent devices characterised by their application for retarding, or preventing rotary movement of, a winding drum or barrel.

35c-1/00	Rope, cable, or chain winding mechanisms; Capstans (portable or mobile lifting or hauling appliances 35c-3/00)
35c-1/02	. Driving gear
35c-1/04	. . manually operated
35c-1/06	. . . Safety cranks for preventing unwanted crank rotation and subsequent lowering of the loads
35c-1/08	. . incorporating fluid motors
35c-1/10	. . . Steam driving gear
35c-1/12	. . incorporating electric motors
35c-1/14	. . Power transmissions between power sources and drums or barrels
35c-1/16	. . . the drums or barrels being freely rotatable (35c-1/24 takes precedence)
35c-1/18	. . . . and the power being transmitted from a continuously-operating and irreversible prime mover
35c-1/20	. . . Chain, belt, or friction drives, e.g. incorporating sheaves
35c-1/22	. . . Planetary or differential gearings (for actuating grab buckets 35c-1/70)
35c-1/24	. . . for varying speed, or reversing direction of rotation, of drums or barrels
35c-1/26	. having several drums or barrels
35c-1/28	. Other constructional details
35c-1/30	. . Rope, cable, or chain drums or barrels
35c-1/34	. . . Attachment of ropes or cables to drums or barrels
35c-1/36	. . Guiding, or otherwise ensuring winding in an orderly manner, of ropes, cables, or chains
35c-1/38	. . . by means of guides movable relative to drum or barrel
35c-1/39	. . . by means of axially-movable drums or barrels
35c-1/40	. . Control devices
35c-1/42	. . . non-automatic
35c-1/44	. . . . pneumatic or hydraulic
35c-1/46	. . . . electric
35c-1/48	. . . . automatic

- 35c-1/50 for maintaining predetermined rope, cable, or chain tension, e.g. in ropes or cables for towing craft, in chains for anchors; Waring or mooring winch-cable tension control
- 35c-1/52 for varying rope or cable tension, e.g. when recovering craft from water
- 35c-1/54 . Safety gear
- 35c-1/56 . . Adaptations of limit switches
- 35c-1/58 . . responsive to excess of load
- 35c-1/60 . adapted for special purposes
- 35c-1/62 . . for actuating grab buckets (electrical control in cranes 35b-13/32)
- 35c-1/64 . . . by means of a single rope or chain
- 35c-1/66 . . . driven by a single motor
- 35c-1/68 . . . driven by two motors
- 35c-1/70 . . . driven through planetary or differential gearings
- 35c-1/72 . . Anchor-chain sprockets; Anchor capstans
- 35c-1/74 . . Capstans
- 35c-1/76 . . . having auxiliary drums or barrels for storing the ropes or cables
- 35c-1/78 . . . for shunting, e.g. in marshalling yards
- 35c-1/80 . . for scrapers
- 35c-1/82 . . for slewing and hoisting by means of derricks

- 35c-3/00** **Portable or mobile lifting or hauling appliances**
- 35c-3/02 . Manually-operated, e.g. lever-actuated, devices operating on ropes, cables, or chains for hauling in a mainly horizontal direction (35c-3/04, 35c-3/12 take precedence)
- 35c-3/04 . Pulley blocks or like devices in which force is applied to a rope, cable, or chain which passes over one or more pulleys, e.g. to obtain mechanical advantage (sheaves 47h-55/00)
- 35c-3/06 . . with more than one pulley
- 35c-3/08 . . . Arrangements of sheaves
- 35c-3/10 . . . Applications of braking or detent devices
- 35c-3/12 . Chain or like hand-operated tackles with or without power-transmission gearing between operating member and lifting rope, chain, or cable
- 35c-3/14 . . lever-operated
- 35c-3/16 . . operated by an endless chain passing over a pulley or a sprocket
- 35c-3/18 . Power-operated hoists
- 35c-3/20 . . with driving motor, e.g. electric motor, and drum or barrel contained in a common housing
- 35c-3/22 . . . with variable-speed gearing between driving motor and drum or barrel
- 35c-3/24 . . Applications of limit switches
- 35c-3/26 . . Other details, e.g. housings

- 35c-5/00** **Braking or detent devices characterised by their application to lifting or hoisting gear, e.g. for controlling the lowering of loads** (for pulley blocks 35c-3/10; of interest apart from such applications 47c, 47h)
- 35c-5/02 . Crane, lift, hoist, or winch brakes operating on drums, barrels, or ropes
- 35c-5/04 . . actuated by centrifugal force
- 35c-5/06 . . with radial effect (35c-5/20 takes precedence)
- 35c-5/08 . . . embodying blocks or shoes
- 35c-5/10 . . . embodying bands
- 35c-5/12 . . with axial effect (35c-5/22 takes precedence)
- 35c-5/14 . . . embodying discs
- 35c-5/16 . . for action on ropes or cables
- 35c-5/18 . . for generating braking forces which are proportional to the loads suspended; Load-actuated brakes
- 35c-5/20 . . . with radial effect
- 35c-5/22 . . . with axial effect
- 35c-5/24 . . Operating devices
- 35c-5/26 . . . pneumatic or hydraulic
- 35c-5/28 specially adapted for winding gear, e.g. in mining hoists
- 35c-5/30 . . . electrical
- 35c-5/32 . Detent devices

35c-5/34 . . . having latches

35d Hoisting devices: skids, jacks, sack lifters, load lifting implements

- 35d-1/01 Skids
- 35d-1/02 Sack lifters
- 35d-2/01 Crowbars and levers
- 35d-2/02 Jacks, in general
- 35d-2/03 Jacks with one guided pawl
- 35d-2/04 Jacks with two guided pawls
- 35d-2/05 Jacks with step-by-step hoisting gear
- 35d-2/06 Jacks with clamp hoisting gear

- Rack winches
- 35d-3/01 in general
- 35d-3/02 with several racks
- 35d-3/03 with pivoted racks
- 35d-3/04 with pawl and ratchet

- Screw-jacks
- 35d-4/01 in general
- 35d-4/02 with telescoping screw
- 35d-4/03 with toggle action

- Lifting jacks
- 35d-5/01 hydraulically driven
- 35d-5/02 hydraulically driven, with pump
- 35d-5/03 with brake arrangement on lowering
- 35d-5/04 pneumatically driven

- 35d-6 Hoisting devices with lazy tong arrangement (37e-6/02; 61a-3/01)
- 35d-7 Lifting by means of buoyancy (dock equipment 65b)
- 35d-8/01 Axle jacks, in general
- 35d-8/02 Axle jacks with automatically disengaging carriage
- 35d-8/03 Lifting jacks actuated by a series of successive balls
- 35d-9/01 Devices for erecting masts
- 35d-9/02 Devices for uprooting masts
- 35d-9/03 Devices for removing bales from piles
- 35d-9/04 Electrically driven lifting jacks
- 35d-9/05 Lifting devices for special purposes
- 35d-10/01 Rising platforms
- 35d-10/02 Lifting platforms in general
- 35d-10/03 Lifting platforms with rack drive
- 35d-10/04 Lifting platforms with screw drive
- 35d-10/05 Lifting platforms actuated by pressure
- 35d-10/06 Lifting platforms actuated by automobile engines
- 35d-10/07 Lifting platforms raised by the vibration of an approaching automobile
- 35d-10/08 Lifting platforms for raising vehicles under the axles or the wheels
- 35d-10/09 Lifting platforms with adjustable supporting rails
- 35d-10/10 Lifting platforms with suspended platform
- 35d-10/11 Lifting platforms, tiltable
- 35d-10/12 Lifting platforms for raising vehicle bodies
- 35d-10/13 Lifting platforms consisting of four jointly driven jacks
- 35d-10/14 Lifting platforms with central column under the vehicle
- 35d-11 Accessories, miscellaneous

35d	(IPC: B66F) Hoisting, lifting, or hauling, not otherwise provided for, e.g. devices which apply a lifting or pushing force directly to the surface of a load (off-shore platforms 84c-21/00; scaffolding combined with lifting devices 37e-1/22; lifting devices for sliding forms 37e-11/24; lifting of buildings 37e-23/06; shores or struts 37e-25/00; lifts or other hoisting devices on ladders 37g2-7/12; props for mining 5c-15/00)
35d-1/00	Devices, e.g. jacks, for lifting loads in predetermined steps
35d-1/02	. with locking elements, e.g. washers, co-operating with posts
35d-1/04	. . the posts being toothed
35d-1/06	. . . and the devices being actuated mechanically
35d-1/08	. . . and the devices being operated by fluid pressure
35d-3/00	Devices, e.g. jacks, adapted for uninterrupted lifting of loads (mobile jacks of the garage type 35d-5/00)
35d-3/02	. with racks actuated by pinions
35d-3/04	. . with several racks
35d-3/06	. . with racks comprising pivotable toothed sections or segments, e.g. arranged in pairs
35d-3/08	. screw-operated (35d-3/44 takes precedence; gearings 47h)
35d-3/10	. . with telescopic sleeves
35d-3/12	. . comprising toggle levers (lazy-tongs mechanisms 35d-3/22)
35d-3/14	. . actuated through pawl-and-ratchet mechanisms
35d-3/16	. . actuated through bevel-wheel gearings
35d-3/18	. . actuated through worm gearings
35d-3/20	. . actuated through multiple or change-speed gearings
35d-3/22	. Lazy-tongs mechanisms
35d-3/24	. fluid-pressure operated (water-pressure machines 88b; fluid-pressure servomotors 60a; hydraulic gearings 47h; cylinders, pistons 47f2)
35d-3/26	. . Adaptations or arrangements of pistons
35d-3/28	. . . telescopic
35d-3/30	. . with positive brakes or lock
35d-3/32	. . with means for avoiding excessive shocks on completion movements
35d-3/34	. . pneumatic
35d-3/36	. . Load-engaging elements
35d-3/38	. . . adjustable relative to piston
35d-3/40	. . . inflatable
35d-3/42	. . with self-contained pumps, e.g. actuated by hand
35d-3/44	. with self-contained electric driving motors
35d-3/46	. Combinations of several jacks with means for interrelating lifting or lowering movements
35d-5/00	Mobile jacks of the garage type mounted on wheels or rollers
35d-5/02	. with mechanical lifting gear
35d-5/04	. with fluid-pressure-operated lifting gear
35d-7/00	Lifting frames, e.g. for lifting vehicles; Platform lifts (for lift-truck platforms 35d-9/06)
35d-7/02	. with platforms suspended from ropes, cables, or chains
35d-7/04	. . hydraulically or pneumatically operated
35d-7/06	. with platforms supported by levers for vertical movement
35d-7/08	. . hydraulically or pneumatically operated
35d-7/10	. with platforms supported directly by jacks
35d-7/12	. . by mechanical jacks
35d-7/14	. . . screw-operated
35d-7/16	. . by one or more hydraulic or pneumatic jacks
35d-7/18	. . . by a single central jack
35d-7/20	. . . by several jacks with means for maintaining the platforms horizontal during movement
35d-7/22	. with tiltable platforms (tilting vehicles for unloading 81e)

- 35d-7/24 . for raising or lowering vehicles by their own power
- 35d-7/26 . for selective lifting of parts of vehicles (mobile garage jacks 35d-5/00)
- 35d-7/28 . Constructional details, e.g. end stops, pivoting supporting members, sliding runners adjustable to load dimensions

35d-9/00 Devices for lifting or lowering bulky or heavy goods for loading or unloading purposes (cranes 35b)

- 35d-9/02 . Stationary loaders or unloaders, e.g. for sacks
- 35d-9/04 . . hydraulically actuated or controlled
- 35d-9/06 . Masted lifting-platform or for-lift trucks movable on wheels or equivalent (vehicle aspects 63c; non-masted lifting-platform trucks, trucks or like wheeled vehicles with auxiliary loading or unloading platforms 63c); Inverted lifting-platform or fork-lift trucks, i.e. trucks suspended from overhead rail-tracks or running between upper and lower rail-tracks (rail-vehicle aspects 20c, 20d)

Note:

The terms "platforms" and "forks" in this subgroup also cover other load supporting or gripping members movable along the mast.

- 35d-9/08 . . Masts; Guides; Chains
- 35d-9/10 . . . movable in a horizontal direction relative to truck
- 35d-9/12 . . Platforms; Forks; Other load supporting or gripping members
- 35d-9/14 . . . laterally movable, e.g. swingable, for slewing or transverse movements
- 35d-9/16 . . . inclinable relative to mast
- 35d-9/18 . . . Load gripping or retaining means
- 35d-9/19 . . . Additional means for facilitating unloading
- 35d-9/20 . . Means for actuating or controlling masts, platforms, or forks (power take-off from vehicle transmissions, combined with vehicle propulsion systems 63c)
- 35d-9/22 . . . Hydraulic devices or systems
- 35d-9/24 . . . Electrical devices or systems

35d-11/00 Lifting devices specially adapted for particular uses not otherwise provided for

- 35d-11/02 . for elevating, erecting, or dismantling masts
- 35d-11/04 . for movable platforms or cabins, e.g. on vehicles, permitting workmen to place themselves in any desired position for carrying out required operations (platforms for cleaning windows 34c-3/02; devices for rescuing persons from buildings 61a-8; vehicle aspects of service vehicles 20, 63; maintenance travellers for bridges 19d-19/10; scaffolds on an extensible substructure 37e-1/22; liftable or lowerable platforms for use on ladders 37g2-7/16)

35d-13/00 Common constructional features or accessories

35d-15/00 Crowbars or levers

35d-17/00 Safety devices, e.g. for limiting or indicating lifting force

35d-19/00 Hoisting, lifting, hauling, or pushing, not otherwise provided for