

SECTION B — PERFORMING OPERATIONS; TRANSPORTING

B66 HOISTING; LIFTING; HAULING

B66B ELEVATORS; ESCALATORS OR MOVING WALKWAYS (life-saving devices used as an alternative to normal egress means, e.g. stairs, during rescue to lower persons in cages, bags, or similar supports from buildings or other structures A62B 1/02; equipment for handling freight or for facilitating passenger embarkation or the like to aircraft B64D 9/00; braking or detent devices characterised by their application to lifting or hoisting gear B66D 5/00) [4]

Note(s)

In this subclass, the following term is used with the meaning indicated:

- "elevator" covers the term "lift", and the two terms are interchangeable.

Subclass index

COMMON FEATURES OF ELEVATORS

Control; signalling; checking, safety; other.....1/00, 3/00, 5/00, 7/00

LIFTS FOR BUILDINGS

Kinds; component parts; gates.....9/00, 11/00, 13/00

LIFTS FOR MINES

Kinds, hoistway equipment; component parts.....17/00, 19/00, 15/00

OTHER ELEVATORS.....20/00

ESCALATORS, MOVING WALKWAYS

Kinds; component parts; accessories.....21/00, 23/00, 31/00

Control; indicating operating conditions; safety devices.....25/00, 27/00, 29/00

Common features of elevators

- 1/00 Control systems of elevators in general** (safety devices B66B 5/00; controlling door or gate operation B66B 13/00)
- 1/02 • Control systems without regulation, i.e. without retroactive action
- 1/04 • • hydraulic
- 1/06 • • electric
- 1/08 • • • with devices, e.g. handles or levers, in the cars or cages for direct control of movements
- 1/10 • • • • specially adapted for mining hoists
- 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
- 1/14 • • • with devices, e.g. push-buttons, for indirect control of movements
- 1/16 • • • • with means for storing pulses controlling the movements of a single car or cage
- 1/18 • • • • with means for storing pulses controlling the movements of several cars or cages
- 1/20 • • • • • and for varying the manner of operation to suit particular traffic conditions, e.g. "one-way rush-hour traffic"
- 1/22 • • • • with means for taking account of delayed calls
- 1/24 • Control systems with regulation, i.e. with retroactive action, for influencing travelling speed, acceleration, or deceleration
- 1/26 • • mechanical

- 1/28 • • electrical (detecting excessive speed B66B 5/04)
- 1/30 • • • effective on driving gear
- 1/32 • • • effective on braking devices
- 1/34 • Details
- 1/36 • • Means for stopping the cars, cages, or skips at predetermined levels
- 1/38 • • • and for returning the controlling handle or lever to its neutral position
- 1/40 • • • and for correct levelling at landings
- 1/42 • • • • separate from the main drive
- 1/44 • • • and for taking account of disturbance factors, e.g. variation of load weight
- 1/46 • • Adaptations of switches or switchgear
- 1/48 • • • Adaptations of mechanically-operated limit switches
- 1/50 • • • with operating or control mechanisms mounted in the car or cage or in the lift well or hoistway
- 1/52 • • • Floor selectors
- 3/00 Applications of devices for indicating or signalling operating conditions of elevators**
- 3/02 • Position or depth indicators
- 5/00 Applications of checking, fault-correcting or safety devices in elevators**
- 5/02 • responsive to abnormal operating conditions
- 5/04 • • for detecting excessive speed
- 5/06 • • • electrical
- 5/08 • • for preventing overwinding
- 5/10 • • • electrical

- 5/12 • • in case of rope or cable slack
- 5/14 • • in case of excessive loads
- 5/16 • • Braking or catch devices operating between cars, cages, or skips and fixed guide elements or surfaces in hoistway or well
- 5/18 • • • and applying frictional retarding forces
- 5/20 • • • • by means of rotatable eccentrically- mounted members (B66B 5/24 takes precedence)
- 5/22 • • • • by means of linearly-movable wedges (B66B 5/24 takes precedence)
- 5/24 • • • • by acting on guide ropes or cables
- 5/26 • • Positively-acting devices, e.g. latches, knives
- 5/28 • Buffer-stops for cars, cages, or skips

7/00 Other common features of elevators

- 7/02 • Guideways; Guides
- 7/04 • • Shoes; Rollers
- 7/06 • Arrangements of ropes or cables
- 7/08 • • for connection to the cars or cages, e.g. couplings
- 7/10 • • for equalising rope or cable tension
- 7/12 • Checking, lubricating, or cleaning means for ropes, cables, or guides

Lifts in, or associated with, buildings

9/00 Kinds or types of lifts in, or associated with, buildings or other structures (characterised by control systems B66B 1/00)

- 9/02 • actuated mechanically otherwise than by rope or cable
- 9/04 • actuated pneumatically or hydraulically (platforms for lifting or lowering through short distances B66F 7/00)
- 9/06 • inclined, e.g. serving blast furnaces
- 9/08 • • associated with stairways, e.g. for transporting disabled persons
- 9/10 • paternoster type
- 9/16 • Mobile or transportable lifts specially adapted to be shifted from one part of a building or other structure to another part or to another building or structure
- 9/187 • • with liftway specially adapted for temporary connection to a building or other structure (B66B 9/193 takes precedence) [6]
- 9/193 • • with inclined liftways [6]

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

- 11/02 • Cages (doors, gates, or other apparatus controlling access to, or exit from, cages B66B 13/00)
- 11/04 • Driving gear
- 11/06 • • with hoisting rope or cable positively attached to a winding drum
- 11/08 • • with hoisting rope or cable operated by frictional engagement with a winding drum or sheave

13/00 Doors, gates, or other apparatus controlling access to, or exit from, cages or lift-well landings

- 13/02 • Door or gate operation
- 13/04 • • of swinging doors
- 13/06 • • of sliding doors
- 13/08 • • • guided for horizontal movement
- 13/10 • • • by car or cage movement
- 13/12 • • Arrangements for effecting simultaneous opening or closing of cage and landing doors
- 13/14 • • Control systems or devices

- 13/16 • • • Door or gate locking devices controlled or primarily controlled by condition of cage, e.g. movement or position
- 13/18 • • • • without manually-operable devices for completing locking or unlocking of doors
- 13/20 • • • • • Lock mechanisms actuated mechanically by abutments or projections on the cages
- 13/22 • Operation of door or gate contacts
- 13/24 • Safety devices in passenger lifts, not otherwise provided for, for preventing trapping of passengers
- 13/26 • • between closing doors
- 13/28 • • between car or cage and wells
- 13/30 • Constructional features of doors or gates

Lifts in hoistways of mines

15/00 Main component parts of mining-hoist winding devices

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

17/00 Hoistway equipment

- 17/02 • mounted in head-frames
- 17/04 • Mining-hoist cars or cages
- 17/06 • • with tiltable platforms
- 17/08 • Mining skips
- 17/10 • • adapted for passenger transport
- 17/12 • Counterpoises
- 17/14 • Applications of loading or unloading equipment
- 17/16 • • for loading or unloading mining-hoist cars or cages
- 17/18 • • • Swinging bridges, e.g. for compensating for differences in level between car or cage and landing
- 17/20 • • • by moving vehicles into, or out of, the cars or cages
- 17/22 • • • Securing vehicles in cars or cages
- 17/24 • • • • mounted on the car or cage
- 17/26 • • for loading or unloading mining-hoist skips
- 17/28 • • electrically controlled
- 17/30 • • • for cars or cages
- 17/32 • • • for skips
- 17/34 • Safe lift clips; Keys
- 17/36 • Gates or other apparatus controlling access to, or exit from, cars, cages, or hoistway landings

19/00 Mining-hoist operation

- 19/02 • Installing or exchanging ropes or cables
- 19/04 • Installing or removing mining-hoist cars, cages, or skips
- 19/06 • Applications of signalling devices (depth indicators B66B 3/02)

20/00 Elevators not provided for in groups B66B 1/00-B66B 19/00 [2006.01]

Escalators or moving walkways [4]

21/00 Kinds or types of escalators or moving walkways [4]

- 21/02 • Escalators [4]
- 21/04 • • linear type [4]

21/06	• • spiral type [4]	23/24	• • Handrails (driving gear therefor B66B 23/02; tensioning means therefor B66B 23/16; preventing jamming thereof by foreign objects B66B 29/04; accessories therefor B66B 31/02) [4]
21/08	• • paternoster type, i.e. the escalator being used simultaneously for climbing and descending (B66B 21/06 takes precedence) [4]	23/26	• • • of variable speed type [4]
21/10	• Moving walkways [4]	25/00	Control of escalators or moving walkways (walkways of variable speed type B66B 21/12; handrails of variable speed type B66B 23/26) [4]
21/12	• • of variable speed type [4]	27/00	Indicating operating conditions of escalators or moving walkways [4]
23/00	Component parts of escalators or moving walkways [4]	29/00	Safety devices of escalators or moving walkways [4]
23/02	• Driving gear [4]	29/02	• responsive to, or preventing, jamming by foreign objects [4]
23/04	• • for handrails [4]	29/04	• • for balustrades or handrails [4]
23/06	• • • with means synchronising the operation of the steps or the carrying belts and the handrails [4]	29/06	• • Combplates [4]
23/08	• Carrying surfaces [4]	29/08	• Means to facilitate passenger entry or exit (moving handrails B66B 23/24) [4]
23/10	• • Carrying belts [4]	31/00	Accessories for escalators, or moving walkways, e.g. for sterilising or cleaning (for safety B66B 29/00) [4]
23/12	• • Steps [4]	31/02	• for handrails [4]
23/14	• Guiding means for carrying surfaces [4]		
23/16	• Means allowing tensioning of the endless member [4]		
23/18	• • for carrying surfaces [4]		
23/20	• • for handrails [4]		
23/22	• Balustrades [4]		

B66C CRANES; LOAD-ENGAGING ELEMENTS OR DEVICES FOR CRANES, CAPSTANS, WINCHES, OR TACKLES (rope, cable, or chain winding mechanisms, braking or detent devices therefor B66D; specially adapted for nuclear reactors G21)

Subclass index

KINDS OF CRANES

Trolley cranes.....	19/00
Bridge; cable-way; jib.....	17/00, 21/00, 23/00
Other cranes.....	25/00

COMMON FEATURES OR DETAILS

Load-engaging devices.....	1/00, 3/00
Supporting structures; runways.....	5/00, 6/00, 7/00
Travelling gear; trolleys.....	9/00, 11/00
Safety gear.....	15/00
Other.....	13/00

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

Note(s)

In groups B66C 1/00 or B66C 3/00, the following term is used with the meaning indicated:

- "cranes" also covers capstans, winches, or tackles.

1/00 Load-engaging elements or devices attached to lifting, lowering, or hauling gear of cranes, or adapted for connection therewith for transmitting forces to articles or groups of articles (fastening to cables or ropes F16G 11/00)

1/02	• by suction means
1/04	• by magnetic means
1/06	• • electromagnetic
1/08	• • • Circuits therefor (for electromagnets in general H01F 7/18)
1/10	• by mechanical means
1/12	• • Slings comprising chains, wires, ropes, or bands; Nets (article side grippers suspended by ropes or chains from crane hooks B66C 1/42)
1/14	• • • Slings with hooks

1/16	• • • Slings with load-engaging platforms or frameworks
1/18	• • • Band-type slings
1/20	• • • specially adapted for handling vehicles
1/22	• • Rigid members, e.g. L-shaped members, with parts engaging the under surface of the loads; Crane hooks
1/24	• • • Single members engaging the loads from one side only
1/26	• • • • with means for releasing the loads
1/28	• • • Duplicate, e.g. pivoted, members engaging the loads from two sides
1/30	• • • • and also arranged to grip the sides of the loads
1/32	• • • • • of piled or stacked articles
1/34	• • • Crane hooks
1/36	• • • • with means, e.g. spring-biased detents, for preventing inadvertent disengagement of loads
1/38	• • • • adapted for automatic disengagement from loads on release of cable tensions (for parachutes B64D)

- 1/40 • • • • formed or fitted with load-measuring or indicating devices
- 1/42 • • Gripping members engaging only the external or internal surface of the articles (for handling or stripping castings or ingots during manufacture B22D 29/00)
- 1/44 • • • and applying frictional forces
- 1/46 • • • • by inflatable elements
- 1/48 • • • • to vertical edge portions of sheets, tubes, or like thin or thin-walled articles (internally-expanding grippers B66C 1/54)
- 1/54 • • • • Internally-expanding grippers for handling hollow articles (B66C 1/46 takes precedence) [2]
- 1/56 • • • • • for handling tubes
- 1/58 • • • and deforming the articles, e.g. by using gripping members such as tongs or grapples
- 1/59 • • • • Tongs for sacks [3]
- 1/62 • • comprising article-engaging members of a shape complementary to that of the articles to be handled
- 1/64 • • • for T- or I-section beams or girders
- 1/66 • • • for engaging holes, recesses, or abutments on articles specially provided for facilitating handling thereof
- 1/68 • mounted on, or guided by, jibs (jibs B66C 23/64)
- 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 or other containers B65D, e.g. pallets B65D 19/00; dredges equipped with grabs E02F)
- 3/02 • Bucket grabs
- 3/04 • Tine grabs
- 3/06 • Grabs actuated by a single rope or chain
- 3/08 • • and having tipping rings
- 3/10 • • and having buckets opening automatically upon the grab being lowered on to the dump of material
- 3/12 • Grabs actuated by two or more ropes
- 3/14 • Grabs opened or closed by driving motors thereon
- 3/16 • • by fluid motors
- 3/18 • • by electric motors
- 3/20 • mounted on, or guided by, jibs (jibs B66C 23/64)

Other common features; Details

- 5/00 Base-supporting structures with legs**
- 5/02 • Fixed or travelling bridges or gantries, i.e. elongated structures of inverted-L- or of inverted-U-shape
- 5/04 • • with runways or tracks supported for movements relative to bridge or gantry
- 5/06 • • with runways or tracks supported for lateral swinging movements
- 5/08 • • with vertically-inclinable runways or tracks
- 5/10 • Portals, i.e. essentially circular or square platforms with three or more legs specially adapted for supporting slewing jib cranes
- 6/00 Girders, or track-supporting structures, specially adapted for cranes** (base-supporting structures with legs B66C 5/00; girders in general E04C 3/02)
- 7/00 Runways, tracks, or trackways for trolleys or cranes**
- 7/02 • for underhung trolleys or cranes
- 7/04 • • Trackway suspension

- 7/06 • • • on supports constructed for easy erection, e.g. transportable
- 7/08 • Constructional features of runway rails or rail mountings (of general application E01B)
- 7/10 • Arrangements or devices for extending runways or tracks
- 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 E01B)
- 7/14 • • Runway interlocking devices
- 7/16 • Devices specially adapted for limiting trolley or crane travel; Arrangements of buffer-stops (buffer-stops of interest apart from this application B61K 7/18; limit-switch arrangements, limit circuits B66D 1/56)
- 9/00 Travelling gear incorporated in, or fitted to, trolleys or cranes** (for dredgers E02F)
- 9/02 • for underhung trolleys or cranes
- 9/04 • to facilitate negotiation of curves
- 9/06 • for more than one rail gauge
- 9/08 • Runners; Runner bearings (wheels for railbound vehicles B60B)
- 9/10 • Undercarriages or bogies, e.g. end carriages, end bogies
- 9/12 • • with load-distributing means for equalising wheel pressure
- 9/14 • Trolley or crane travel drives (rope, cable, or chain drives for loads or trolleys B66C 11/16; control B66C 13/18)
- 9/16 • with means for maintaining alignment between wheels and track
- 9/18 • with means for locking trolleys or cranes to runways or tracks to prevent inadvertent movements
- 11/00 Trolleys or crabs, e.g. operating above runways** (runways, tracks, or trackways therefor B66C 7/00; winch mechanisms B66D)
- 11/02 • with operating gear or operator's cabin suspended, or laterally offset, from runway or track
- 11/04 • • Underhung trolleys (power-operated hoists with driving motor and drum or barrel contained in a common housing B66D 3/20)
- 11/06 • • • running on monorails (overhead railway systems B61B)
- 11/08 • with turntables
- 11/10 • • equipped with jibs (jib cranes B66C 23/00)
- 11/12 • having hoisting gear adapted to special load-engaging elements and not otherwise provided for
- 11/14 • adapted to operate on crane or bridge structure of particular configuration, e.g. on reinforced concrete girders of rectangular cross-section
- 11/16 • Rope, cable, or chain drives for trolleys; Combinations of such drives with hoisting gear
- 11/18 • • comprising endless ropes or cables
- 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 B66D 1/14)
- 11/22 • • actuated pneumatically or hydraulically
- 11/24 • • with means for locating or sustaining the loads or trolleys in predetermined positions; Hay hoists
- 11/26 • • • Abutments; Stop blocks; End stops
- 13/00 Other constructional features or details**

- 13/02 • Devices for facilitating retrieval of floating objects, e.g. for recovering craft from water (equipment for handling lifeboats or the like B63B 23/00; loading or unloading floating cargo using ship-based equipment B63B 27/36; salvaging, or hauling-out on slipways, waterborne vessels B63C; winding mechanism controls B66D 1/52)
- 13/04 • Auxiliary devices for controlling movements of suspended loads, or for preventing cable slack
- 13/06 • • for minimising or preventing longitudinal or transverse swinging of loads
- 13/08 • • for depositing loads in desired attitudes or positions
- 13/10 • • for preventing cable slack (control devices for rope, cable, or chain winding mechanisms, e.g. for controlling tension, B66D 1/40)
- 13/12 • Arrangements of means for transmitting pneumatic, hydraulic, or electric power to movable parts or devices (devices of general interest specially adapted or mounted for storing and repeatedly paying-out and re-storing lengths of material B65H 75/34)
- 13/14 • • to load-engaging elements or motors associated therewith
- 13/16 • Applications of indicating, registering, or weighing devices (in crane hooks B66C 1/40; in safety gear B66C 15/00; weighing-apparatus G01G; remote indicating in general G08)
- 13/18 • Control systems or devices (exclusively for rope, cable, or chain winding mechanisms B66D 1/40)
- 13/20 • • for non-electric drives (transmitting control pulses B66C 13/40)
- 13/22 • • for electric drives (transmitting control pulses B66C 13/40; systems or devices of general application H02P)
- 13/23 • • • Circuits for controlling the lowering of the load
- 13/24 • • • • by dc motors
- 13/26 • • • • by ac motors
- 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
- 13/30 • • • Circuits for braking, traversing, or slewing motors
- 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 B66D 1/62)
- 13/34 • • • • through differential or planetary gearing
- 13/36 • • • • Single-motor-drive control systems
- 13/38 • • • • Systems controlling independent motors
- 13/40 • • Applications of devices for transmitting control pulses; Applications of remote control devices (control in general G05)
- 13/42 • • • Hydraulic transmitters
- 13/44 • • • Electrical transmitters
- 13/46 • • Position indicators for suspended loads or for crane elements
- 13/48 • • Automatic control of crane drives for producing a single or repeated working cycle; Programme control
- 13/50 • • Applications of limit circuits or of limit-switch arrangements (for winding mechanisms B66D 1/56)

- 13/52 • Details of compartments for driving engines or motors or of operator's stands or cabins
- 13/54 • • Operator's stands or cabins
- 13/56 • • • Arrangements of handles or pedals
- 15/00 **Safety gear** (for rope, cable, or chain winding mechanisms B66D 1/54)
- 15/02 • for retaining load-engaging elements in the event of rope or cable breakage
- 15/04 • for preventing collisions, e.g. between cranes or trolleys operating on the same track
- 15/06 • Arrangements or use of warning devices [2]

Kinds or types of cranes [2]

- 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** (adaptations of girders or of track-supporting structures B66C 6/00)
- 17/04 • with lifting beams, e.g. slewable beams, carrying load-engaging elements, e.g. magnets, hooks (constructions of load-engaging elements B66C 1/00, B66C 3/00)
- 17/06 • specially adapted for particular purposes, e.g. in foundries, forges; combined with auxiliary apparatus serving particular purposes (B66C 17/04 takes precedence)
- 17/08 • • for charging treatment chambers, e.g. furnaces, kilns, ovens (charging furnaces in general F27D 3/00)
- 17/10 • • for transporting ladles
- 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 B66C 17/18; grippers for handling or stripping castings or ingots during manufacture B22D 29/00)
- 17/14 • • • Tong cranes with means for moving article-pushers relative to the tongs
- 17/16 • • • Tong cranes with means for turning the tongs about a vertical axis
- 17/18 • • for manipulating workpieces during forging operations (workpiece manipulators in forging machines B21J 13/10)
- 17/20 • • for hoisting or lowering heavy load carriers, e.g. freight containers, railway wagons
- 17/22 • • for hoisting or lowering locomotives
- 17/24 • • for building ships on slipways
- 17/26 • • combined with auxiliary apparatus, e.g. log saws, pushers for unloading vehicles, means for shunting railway vehicles
- 19/00 **Cranes comprising trolleys or crabs running on fixed or movable bridges or gantries** (B66C 17/00 takes precedence; base-supporting structures with legs B66C 5/00; adaptations of girders or of track-supporting structures B66C 6/00; jib cranes B66C 23/00)
- 19/02 • collapsible
- 21/00 **Cable cranes, i.e. comprising hoisting devices running on aerial cable-ways** (adaptations of girders or of track-supporting structures B66C 6/00; rope or cable drives for trolleys, combinations of such drives with hoisting gear B66C 11/16; railway systems B61B; rope or cable winding mechanisms B66D 1/00)

B66C

21/02	• with cable-ways supported on framework swingably connected to ground-engaging elements	23/38	• • • with separate prime movers for crane and vehicle
21/04	• with cable-ways supported at one end or both ends on bodily-movable framework, e.g. framework mounted on rail track	23/40	• • • with a single prime mover for both crane and vehicle
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	23/42	• • • with jibs of adjustable configuration, e.g. foldable
21/08	• Sag carriers or rope trolleys, suspended or not, e.g. fixed but offering clearance for travelling gear	23/44	• • • Jib cranes adapted for attachment to standard vehicles, e.g. agricultural tractors
21/10	• • travelling	23/46	• • • Mobile jib cranes with non-sleuable jibs
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 or tower cranes (base-supporting structures with legs B66C 5/00; adaptations of girders or of track-supporting structures B66C 6/00)	23/48	• • • Manually-movable jib cranes for use in workshops
	Note(s)	23/50	• • • mounted on railway vehicles, e.g. breakdown cranes
	Group B66C 23/64 takes precedence over groups B66C 23/02-B66C 23/16.	23/52	• • • Floating cranes (floating dredgers E02F)
23/02	• with non-adjustable and non-inclinable jibs mounted solely for slewing movements	23/53	• • • including counterweight or means to compensate for list, trim, or skew of the vessel or platform (counterweights or supports for balancing lifting couples B66C 23/72; equipment to decrease unwanted vessel movements B63B 39/00) [4]
23/04	• with jibs the effective length of which is variable in operation, e.g. longitudinally displaceable, extensible	23/58	• arranged to carry-out a desired sequence of operations automatically, e.g. hoisting followed by luffing and slewing
23/06	• with jibs mounted for jibbing or luffing movements	23/60	• Derricks [3]
23/08	• • and adapted to move the loads in predetermined paths	23/61	• • with slewing force exerted at pivoted end [3]
23/10	• • • the paths being substantially horizontal; Level-luffing jib cranes	23/62	• Constructional features or details (of dredgers E02F)
23/12	• • • • with means for automatically varying the effective length of the hoisting rope or cable	23/64	• • Jibs
23/14	• • • • with means, e.g. pantograph arrangements, for varying jib configuration	23/66	• • • Outer or upper end constructions
23/16	• with jibs supported by columns, e.g. towers having their lower end mounted for slewing movements	23/68	• • • foldable or otherwise adjustable in configuration (B66C 23/687, B66C 23/70 take precedence) [5]
23/18	• specially adapted for use in particular locations or for particular purposes (B66C 23/02-B66C 23/16, B66C 23/58-B66C 23/88 take precedence) [5]	23/683	• • • • while in use [5]
23/20	• • with supporting couples provided by walls of buildings or like structures	23/687	• • • telescopic [5]
23/22	• • • Window cranes, i.e. adapted to be supported in window openings	23/69	• • • • while in use [5]
23/24	• • • Mobile wall cranes	23/693	• • • • • extensible by fluid pressure [5]
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 B66C 23/20; mounted on vehicles B66C 23/36) [5]	23/697	• • • • providing bearing means between sections [5]
23/28	• • • constructed to operate at successively higher levels	23/70	• • • assembled from separate sections to form jibs of various discrete lengths
23/30	• • • • with frameworks composed of telescopic elements	23/72	• • Counterweights or supports for balancing lifting couples
23/32	• • • • Self-hoisting cranes	23/74	• • • separate from jib
23/34	• • • Self-erecting cranes, i.e. with hoisting gear adapted for crane erection purposes	23/76	• • • • and movable to take account of variations of load or of variations of length of jib
23/36	• • mounted on road or rail vehicles; Manually-movable jib cranes for use in workshops; Floating cranes (vehicle or ship aspects B60-B63)	23/78	• • • Supports, e.g. outriggers, for mobile cranes
		23/80	• • • • hydraulically actuated
		23/82	• • Luffing gear
		23/84	• • Slewing gear (anti-friction bearings F16C)
		23/86	• • • hydraulically actuated
		23/88	• Safety gear (for cranes in general B66C 15/00; for rope, cable, or chain winding mechanisms B66D 1/54)
		23/90	• • Devices for indicating or limiting lifting movement
		23/92	• • Snubbers or dash-pots for preventing backwards-swinging of jibs, e.g. in the event of cable or tackle breakage
		23/94	• • for limiting slewing movements
		25/00	Cranes not provided for in groups B66C 17/00-B66C 23/00 [2006.01]

B66D CAPSTANS; WINCHES; TACKLES, e.g. PULLEY BLOCKS; HOISTS (winding or unwinding ropes or cables for feeding or storage purposes B65H; rope or cable-winding or unwinding mechanisms for lifts B66B; hoisting devices specially adapted for suspended scaffolds E04G 3/32)

Note(s)

This subclass covers:

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

1/00 Rope, cable, or chain winding mechanisms; Capstans (portable or mobile lifting or hauling appliances B66D 3/00)

- 1/02 • Driving gear
- 1/04 • • manually operated
- 1/06 • • • Safety cranks for preventing unwanted crank rotation and subsequent lowering of the loads
- 1/08 • • incorporating fluid motors
- 1/10 • • • Steam driving gear
- 1/12 • • incorporating electric motors
- 1/14 • • Power transmissions between power sources and drums or barrels
- 1/16 • • • the drums or barrels being freely rotatable (B66D 1/24 takes precedence)
- 1/18 • • • • and the power being transmitted from a continuously-operating and irreversible prime mover
- 1/20 • • • Chain, belt, or friction drives, e.g. incorporating sheaves
- 1/22 • • • Planetary or differential gearings (for actuating grab buckets B66D 1/70)
- 1/24 • • • for varying speed, or reversing direction of rotation, of drums or barrels
- 1/26 • having several drums or barrels
- 1/28 • Other constructional details
- 1/30 • • Rope, cable, or chain drums or barrels
- 1/34 • • • Attachment of ropes or cables to drums or barrels
- 1/36 • • Guiding, or otherwise ensuring winding in an orderly manner, of ropes, cables, or chains
- 1/38 • • • by means of guides movable relative to drum or barrel (B66D 1/395 takes precedence) [3]
- 1/39 • • • by means of axially-movable drums or barrels (B66D 1/395 takes precedence) [3]
- 1/395 • • • by means effecting both guiding and tensioning of ropes, cables or chains [3]
- 1/40 • • Control devices
- 1/42 • • • non-automatic
- 1/44 • • • • pneumatic or hydraulic
- 1/46 • • • • electric
- 1/48 • • • automatic
- 1/50 • • • • for maintaining predetermined rope, cable, or chain tension, e.g. in ropes or cables for towing craft, in chains for anchors; Warping or mooring winch-cable tension control
- 1/52 • • • • for varying rope or cable tension, e.g. when recovering craft from water
- 1/54 • Safety gear
- 1/56 • • Adaptations of limit switches
- 1/58 • • responsive to excess of load
- 1/60 • adapted for special purposes
- 1/62 • • for actuating grab buckets (electrical control in cranes B66C 13/32)

- 1/64 • • • by means of a single rope or chain
- 1/66 • • • driven by a single motor
- 1/68 • • • driven by two motors
- 1/70 • • • driven through planetary or differential gearings
- 1/72 • • Anchor-chain sprockets; Anchor capstans
- 1/74 • • Capstans
- 1/76 • • • having auxiliary drums or barrels for storing the ropes or cables
- 1/78 • • • for shunting, e.g. in marshalling yards
- 1/80 • • for scrapers
- 1/82 • • for slewing and hoisting by means of derricks

3/00 Portable or mobile lifting or hauling appliances

- 3/02 • Manually-operated, e.g. lever-actuated, devices operating on ropes, cables, or chains for hauling in a mainly horizontal direction (B66D 3/04, B66D 3/12 take precedence)
- 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, chain wheels, pulleys F16H 55/00) [4]
- 3/06 • • with more than one pulley
- 3/08 • • • Arrangements of sheaves
- 3/10 • • • Applications of braking or detent devices
- 3/12 • Chain or like hand-operated tackles with or without power-transmission gearing between operating member and lifting rope, chain, or cable
- 3/14 • • lever-operated
- 3/16 • • operated by an endless chain passing over a pulley or a sprocket
- 3/18 • Power-operated hoists
- 3/20 • • with driving motor, e.g. electric motor, and drum or barrel contained in a common housing
- 3/22 • • • with variable-speed gearing between driving motor and drum or barrel
- 3/24 • • Applications of limit switches
- 3/26 • • Other details, e.g. housings

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 B66D 3/10)

- 5/02 • Crane, lift, hoist, or winch brakes operating on drums, barrels, or ropes
- 5/04 • • actuated by centrifugal force
- 5/06 • • with radial effect (B66D 5/20 takes precedence)
- 5/08 • • • embodying blocks or shoes
- 5/10 • • • embodying bands
- 5/12 • • with axial effect (B66D 5/22 takes precedence)
- 5/14 • • • embodying discs
- 5/16 • • for action on ropes or cables

B66D

- | | | | |
|------|---|------|---|
| 5/18 | • • for generating braking forces which are proportional to the loads suspended; Load-actuated brakes | 5/26 | • • • pneumatic or hydraulic |
| 5/20 | • • • with radial effect | 5/28 | • • • • specially adapted for winding gear, e.g. in mining hoists |
| 5/22 | • • • with axial effect | 5/30 | • • • electrical |
| 5/24 | • • Operating devices | 5/32 | • Detent devices |
| | | 5/34 | • • having latches |

B66F **HOISTING, LIFTING, HAULING, OR PUSHING, NOT OTHERWISE PROVIDED FOR, e.g. DEVICES WHICH APPLY A LIFTING OR PUSHING FORCE DIRECTLY TO THE SURFACE OF A LOAD** (mounting artificial islands on piles or like supports E02B 17/00; scaffolds combined with lifting devices E04G 1/22, E04G 3/28; lifting devices for sliding forms E04G 11/24; lifting of buildings E04G 23/06; shores or struts E04G 25/00; lifts or other hoisting devices on ladders E06C 7/12; props for mining E21D 15/00)

Subclass index

JACKS OR THE LIKE.....	1/00, 3/00, 5/00
LIFTING FRAMES.....	7/00
DEVICES FOR PARTICULAR USES.....	5/00, 9/00, 11/00
MASTED LIFTING-PLATFORM OR FORK-LIFT TRUCKS.....	9/06
COMMON FEATURES OR ACCESSORIES.....	13/00
CROWBARS OR LEVERS.....	15/00
SAFETY DEVICES.....	17/00
OTHER HOISTING, LIFTING, HAULING, OR PUSHING.....	19/00

1/00 Devices, e.g. jacks, for lifting loads in predetermined steps

- 1/02 • with locking elements, e.g. washers, co-operating with posts
- 1/04 • • the posts being toothed
- 1/06 • • • and the devices being actuated mechanically
- 1/08 • • • and the devices being operated by fluid pressure

3/00 Devices, e.g. jacks, adapted for uninterrupted lifting of loads (mobile jacks of the garage type B66F 5/00)

- 3/02 • with racks actuated by pinions
- 3/04 • • with several racks
- 3/06 • • with racks comprising pivotable toothed sections or segments, e.g. arranged in pairs
- 3/08 • screw-operated (B66F 3/44 takes precedence; gearings F16H)
- 3/10 • • with telescopic sleeves
- 3/12 • • comprising toggle levers (lazy-tongs mechanisms B66F 3/22)
- 3/14 • • actuated through pawl-and-ratchet mechanisms
- 3/16 • • actuated through bevel-wheel gearings
- 3/18 • • actuated through worm gearings
- 3/20 • • actuated through multiple or change-speed gearings
- 3/22 • Lazy-tongs mechanisms
- 3/24 • fluid-pressure operated (water-pressure machines F03B; fluid-pressure servomotors F15B, e.g. pyrotechnical actuators F15B 15/19; hydraulic gearings F16H; cylinders, pistons F16J)
- 3/25 • • Constructional features [3]
- 3/26 • • • Adaptations or arrangements of pistons [3]
- 3/28 • • • • telescopic [3]
- 3/30 • • • Positive brakes or locks [3]
- 3/32 • • • Means for avoiding excessive shocks on completion movements [3]
- 3/35 • • • Inflatable flexible elements, e.g. bellows (inflatable load-engaging elements B66F 3/40; connection of valves to inflatable elastic bodies B60C 29/00) [3]

- 3/36 • • • Load-engaging elements [3]
- 3/38 • • • • adjustable relative to piston [3]
- 3/40 • • • • inflatable (connection of valves to inflatable elastic bodies B60C 29/00) [3]
- 3/42 • • • with self-contained pumps, e.g. actuated by hand [3]
- 3/43 • • Pyrotechnical jacks [3]
- 3/44 • with self-contained electric driving motors
- 3/46 • Combinations of several jacks with means for interrelating lifting or lowering movements

5/00 Mobile jacks of the garage type mounted on wheels or rollers

- 5/02 • with mechanical lifting gear
- 5/04 • with fluid-pressure-operated lifting gear

7/00 Lifting frames, e.g. for lifting vehicles; Platform lifts (for lift-truck platforms B66F 9/06)

- 7/02 • with platforms suspended from ropes, cables, or chains
- 7/04 • • hydraulically or pneumatically operated
- 7/06 • with platforms supported by levers for vertical movement
- 7/08 • • hydraulically or pneumatically operated
- 7/10 • with platforms supported directly by jacks
- 7/12 • • by mechanical jacks
- 7/14 • • • screw-operated
- 7/16 • • by one or more hydraulic or pneumatic jacks
- 7/18 • • • by a single central jack
- 7/20 • • • by several jacks with means for maintaining the platforms horizontal during movement
- 7/22 • with tiltable platforms (tilting vehicles for unloading B65G 67/34)
- 7/24 • for raising or lowering vehicles by their own power
- 7/26 • for selective lifting of parts of vehicles (mobile garage jacks B66F 5/00)
- 7/28 • Constructional details, e.g. end stops, pivoting supporting members, sliding runners adjustable to load dimensions

- 9/00 Devices for lifting or lowering bulky or heavy goods for loading or unloading purposes** (mobile or transportable lifts in, or associated with, buildings and specially adapted to be shifted from one part of a building or other structure to another part or to another building or structure B66B 9/16; cranes B66C)
- 9/02 • Stationary loaders or unloaders, e.g. for sacks
 - 9/04 • • hydraulically actuated or controlled
 - 9/06 • movable, with their loads, on wheels or the like, e.g. fork-lift trucks (vehicle aspects B60-B62; vehicles predominantly for transporting loads and modified to facilitate loading or unloading B60P 1/00; low-lift hand trucks for transporting goods B62B 3/06)
 - 9/065 • • non-masted (mobile jacks of the garage type mounted on wheels or rollers B66F 5/00) [3]
 - 9/07 • • Floor-to-roof stacking devices, e.g. stacker cranes, retrievers [3]
 - 9/075 • • Constructional features or details [3]
 - 9/08 • • • Masts; Guides; Chains [3]
 - 9/10 • • • • movable in a horizontal direction relative to truck [3]
 - 9/12 • • • Platforms; Forks; Other load-supporting or load-gripping members [3]
 - 9/14 • • • • laterally movable, e.g. swingable, for slewing or transverse movements [3]
 - 9/16 • • • • inclinable relative to mast [3]
 - 9/18 • • • • Load gripping or retaining means [3]
 - 9/19 • • • • Additional means for facilitating unloading [3]
 - 9/20 • • • Means for actuating or controlling masts, platforms, or forks (power take-off from vehicle transmissions, combined with vehicle propulsion systems B60K) [3]
- 9/22 • • • • Hydraulic devices or systems [3]
- 9/24 • • • • Electrical devices or systems [3]
- 11/00 Lifting devices specially adapted for particular uses not otherwise provided for** (ground-engaging vehicle fittings for supporting, lifting or manoeuvring the vehicle B60S 9/00)
- 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 A47L 3/02; devices for rescuing persons from buildings A62B 1/02; vehicle aspects of service vehicles B60P 3/14; maintenance travellers for bridges E01D 19/10; scaffolds on an extensible substructure E04G 1/22; liftable or lowerable platforms for use on ladders E06C 7/16)
- 13/00 Common constructional features or accessories**
- 15/00 Crowbars or levers**
- 17/00 Safety devices, e.g. for limiting or indicating lifting force**
- 19/00 Hoisting, lifting, hauling, or pushing, not otherwise provided for**
- 19/02 • Hauling using anchors; Anchors therefor (marine anchors B63B 21/24; anchoring aircraft B64F 1/12; means for anchoring structural elements specially adapted to foundation engineering E02D 5/74) [3]