

CPC**COOPERATIVE PATENT CLASSIFICATION****A01B**

SOIL WORKING IN AGRICULTURE OR FORESTRY; PARTS, DETAILS, OR ACCESSORIES OF AGRICULTURAL MACHINES OR IMPLEMENTS, IN GENERAL ([making or covering furrows or holes for sowing, planting, or manuring A01C 5/00](#) ; soil working for engineering purposes [E01](#) , [E02](#) , [E21](#) ; { [measuring areas for agricultural purposes G01B](#) })

WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

[A01B 69/04](#) covered by [A01B 69/008](#)
[A01B 69/06](#) covered by [A01B 69/005](#)
[A01B 69/08](#) covered by [A01B 69/006](#)

A01B 1/00

Hand tools ([edge trimmers for lawns A01G 3/06](#) ; { [machines for working soil A01B 35/00](#) ; [making hand tools B21D](#) })

- A01B 1/02 . Spades; Shovels { [hand-operated dredgers E02F 3/02](#) }
- A01B 1/022 .. { [Collapsible; extensible; combinations with other tools](#) }
- A01B 1/024 .. { [Foot protectors attached to the blade](#) }
- A01B 1/026 .. { [with auxiliary handles for facilitating lifting](#) }
- A01B 1/028 .. { [with ground abutment shoes or earth anchors for facilitating lifting](#) }
- A01B 1/04 .. with teeth
- A01B 1/06 . Hoes; Hand cultivators { [rakes A01D 7/00](#) ; [forks A01D 9/00](#) ; [picks B25D](#) }
- A01B 1/065 .. { [powered](#) }
- A01B 1/08 .. with a single blade
- A01B 1/10 .. with two or more blades
- A01B 1/12 .. with blades provided with teeth
- A01B 1/14 .. with teeth only
- A01B 1/16 . Tools for uprooting weeds
- A01B 1/165 .. { [adapted for extracting a substantially cylindrical plug out of the earth](#) }
- A01B 1/18 .. Tong-like tools
- A01B 1/20 . Combinations of different kinds of hand tools
- A01B 1/22 . Attaching the blades or the like to handles ([handles for tools, or their attachment, in general B25G](#)); Interchangeable or adjustable blades
- A01B 1/222 .. { [Adjustable blades](#) }
- A01B 1/225 ... { [around a substantially horizontal axis](#) }
- A01B 1/227 .. { [Interchangable blades](#) }
- A01B 1/24 . for treating meadows or lawns

- A01B 1/243 .. { for aerating }
- A01B 1/246 .. { for cutting sods or turves }

Guidance heading: Ploughs

A01B 3/00 Ploughs with fixed plough-shares

- A01B 3/02 . Man-driven ploughs
- A01B 3/04 . Animal-drawn ploughs
- A01B 3/06 .. without alternating possibility, i.e. incapable of making an adjacent furrow on return journey, { i.e. conventional ploughing }
- A01B 3/08 ... Swing ploughs
- A01B 3/10 ... Trussed-beam ploughs; Single-wheel ploughs
- A01B 3/12 ... Two-wheel beam ploughs
- A01B 3/14 ... Frame ploughs
- A01B 3/16 .. Alternating ploughs, i.e. capable of making an adjacent furrow on return journey
- A01B 3/18 ... Turn-wrest ploughs
- A01B 3/20 ... Balance ploughs
- A01B 3/22 ... with parallel plough units used alternately
- A01B 3/24 . Tractor-drawn ploughs ([A01B 3/04 takes precedence](#))
- A01B 3/26 .. without alternating possibility
- A01B 3/28 .. Alternating ploughs
- A01B 3/30 ... Turn-wrest ploughs
- A01B 3/32 ... Balance ploughs
- A01B 3/34 ... with parallel plough units used alternately
- A01B 3/36 . Ploughs mounted on tractors
- A01B 3/38 .. without alternating possibility
- A01B 3/40 .. Alternating ploughs
- A01B 3/42 ... Turn-wrest ploughs
- A01B 3/421 with a headstock frame made in one piece
- A01B 3/4215 { the headstock being provided with two or more hydraulic cylinders }
- A01B 3/426 with a headstock frame made of two or more parts
- A01B 3/44 ... with parallel plough units used alternately
- A01B 3/46 . Ploughs supported partly by tractor and partly by their own wheels
- A01B 3/462 .. { Alternating ploughs with frame rotating about a vertical axis }
- A01B 3/464 .. { Alternating ploughs with frame rotating about a horizontal axis, e.g. turn-wrest ploughs }
- A01B 3/466 ... { the frame comprising an articulated beam }
- A01B 3/468 .. { the plough wheels being actively driven }
- A01B 3/50 . Self-propelled ploughs

- A01B 3/52 . . . with three or more wheels, or endless tracks
- A01B 3/54 . . . without alternating possibility
- A01B 3/56 . . . Alternating ploughs; { [Balance ploughs](#) }
- A01B 3/58 . . with two wheels
- A01B 3/60 . . . Alternating ploughs
- A01B 3/62 Balance ploughs

- A01B 3/64 . Cable ploughs; Indicating or signalling devices for cable plough systems {([vehicles towed by cable B60D](#))}
- A01B 3/66 . . with motor-driven winding apparatus mounted on the plough
- A01B 3/68 . . Cable systems with one or two engines; { [e.g. electrically-driven or with diesel generating set](#) }
- A01B 3/70 . . . Systems with one engine for working uphill
- A01B 3/72 . . Means for anchoring the cables

- A01B 3/74 . Use of electric power for propelling ploughs { [for rotary cultivators or the like \(electric current collectors B60L 5/00 \)](#) }

- A01B 5/00** **Ploughs with rolling non-driven tools, e.g. discs ([with rotary driven tools A01B 9/00](#))**

- A01B 5/02 . drawn by animals
- A01B 5/04 . drawn by tractors
- A01B 5/06 . . without alternating possibility, { [e.g. with rotary counters provided with scrapers](#) }
- A01B 5/08 . . Alternating ploughs

- A01B 5/10 . mounted or partly-mounted on tractors
- A01B 5/12 . . without alternating possibility
- A01B 5/14 . . Alternating ploughs

- A01B 5/16 . Self-propelled disc or like ploughs

- A01B 7/00** **Disc-like soil-working implements usable either as ploughs or as harrows, or the like**

- A01B 9/00** **Ploughs with rotary driven tools ([tilling implements with rotary driven tools A01B 33/00](#))**

- A01B 9/003 . { [with tools on horizontal shaft transverse to direction of travel](#) }
- A01B 9/006 . { [with tools on horizontal shaft parallel to direction of travel](#) }

- A01B 11/00** **Ploughs with oscillating, digging or piercing tools { [driven or not](#) }**

- A01B 13/00** **Ploughs or like machines for special purposes ([for drainage E02B 11/02](#)); { [Ditch diggers, trench ploughs, forestry ploughs, ploughs for land or marsh reclamation \(machines for aerating meadows A01B 45/02 ; making furrows A01C 5/00 ; dredging](#)**

machines in general [E02F](#))}

- A01B 13/02 . for making or working ridges, e.g. with symmetrically arranged mouldboards, { e.g. [ridging plough](#) }
- A01B 13/025 . . { [with passively driven rotating disc-like elements for forming the ridge](#) }
- A01B 13/04 . for working in vineyards, orchards, or the like
- A01B 13/06 . . Arrangements for preventing damage to the vines, or the like, { e.g. [hydraulic \(machines specially adapted for working in vineyards \[A01B 39/16\]\(#\) \)](#) }
- A01B 13/08 . for working subsoil
- A01B 13/10 . . Special implements for lifting subsoil layers
- A01B 13/12 . . . Means for distributing the layers on the surface
- A01B 13/14 . for working soil in two or more layers
- A01B 13/16 . Machines for combating erosion, e.g. basin-diggers, furrow-dammers

A01B 15/00 Elements, tools, or details of ploughs

- A01B 15/02 . Plough blades; Fixing the blades
- A01B 15/025 . . { [specially adapted for working subsoil](#) }
- A01B 15/04 . . Shares {([making ploughshares by rolling \[B21H\]\(#\) \)](#) }
- A01B 15/06 . . . Interchangeable or adjustable shares
- A01B 15/08 . . Mouldboards
- A01B 15/10 . . . Interchangeable or adjustable mouldboards
- A01B 15/12 . Beams; Handles ([handles for tools or their attachment in general \[B25G\]\(#\) \)](#))
- A01B 15/125 . . { [Articulated beams](#) }
- A01B 15/14 . Frames ([means or arrangements to facilitate transportation \[A01B 73/00\]\(#\) \)](#))
- A01B 15/145 . . { [the plough blades being connected to the plough beam for unisono adjustment of the furrow width](#) }
- A01B 15/16 . Discs ([bearings therefor \[A01B 71/04\]\(#\) \)](#); Scrapers for cleaning discs; Sharpening attachments ([sharpening in general \[B24\]\(#\) \)](#))
- A01B 15/18 . Coulters
- A01B 15/20 . Special adjusting means for tools of ploughs drawn by, or mounted on tractors working on hillsides or slopes

A01B 17/00 Ploughs with special additional arrangements, e.g. means for putting manure under the soil, clod-crushers ([A01B 49/00 takes precedence](#)); { [Means for breaking the subsoil](#) }

- A01B 17/002 . { [Means for putting manure, debris, straw or the like under the soil \(\[to plough-in weeds \\[A01B 39/18\\]\\(#\\) \\)\]\(#\) }](#) }

- A01B 17/004 . { Clod-crushers }
- A01B 17/006 . . { with driven tools }
- A01B 17/008 . . . { rotating about a vertical or steeply inclined axis }

Guidance heading: Harrows

A01B 19/00 Harrows with non-rotating tools {(harrows for working in vineyards [A01B 39/16](#))}

- A01B 19/02 . with tools rigidly or elastically attached to a tool-frame
- A01B 19/04 . . with two or more tool-frames
- A01B 19/06 . . with tools or tool-frames moved to-and-fro mechanically
- A01B 19/08 . with link network supporting tooth-like tools
- A01B 19/10 . Lifting or cleaning apparatus

A01B 21/00 Harrows with rotary non-driven tools (tilling implements with rotary driven tools [A01B 33/00](#))

- A01B 21/02 . with tooth-like tools
- A01B 21/04 . . on horizontally-arranged axles
- A01B 21/06 . . on vertically-arranged axles
- A01B 21/08 . with disc-like tools
- A01B 21/083 . . { of the type comprising four individual disk groups each pivotally connected at fixed locations to a substantially rigid frame }
- A01B 21/086 . . { of the type in which the disc-like tools are individually mounted }

A01B 23/00 Elements, tools, or details of harrows

- A01B 23/02 . Teeth; Fixing the teeth
- A01B 23/04 . Frames (means or arrangements to facilitate transportation [A01B 73/00](#)); Drawing-arrangements
- A01B 23/043 . . { specially adapted for harrows with non-rotating tools }
- A01B 23/046 . . { Specially adapted for harrows with rotating tools }
- A01B 23/06 . Discs ([A01B 15/16](#) takes precedence; bearings therefor [A01B 71/04](#)); Scrapers for cleaning discs; Sharpening attachments; { Lubrication of bearings } (sharpening in general [B24](#))

A01B 25/00 Harrows with special additional arrangements, e.g. means for distributing fertilisers; Harrows for special purposes ([A01B 39/00](#) takes precedence; { fertiliser distributors [A01C 15/00](#) })

Guidance heading: Other machines for working soil

A01B 27/00**Clod-crushers**

A01B 27/005

- . { comprising roller-type tools moving on the ground }

A01B 29/00**Rollers** {(rollers for roads [E01C](#))}

A01B 29/02

- . with smooth surface

A01B 29/04

- . with non-smooth surface formed of rotatably-mounted rings or discs or with projections or ribs on the roller body; Land packers

A01B 29/041

- .. { of "Cambridge"-type, i.e. the soil-pressing rings being stacked on a shaft }

A01B 29/043

- ... { Tire-packers }

A01B 29/045

- .. { the soil-pressing body being a drum }

A01B 29/046

- .. { the soil-pressing body being a helical coil }

A01B 29/048

- .. { Bar cage rollers }

A01B 29/06

- . with special additional arrangements

A01B 31/00**Drags** { graders for field cultivators (graders in general [E02F](#))}**A01B 33/00****Tilling implements with rotary driven tools**, { e.g. in combination with fertiliser distributors or seeders, with grubbing chains, with sloping axles, with driven discs }

A01B 33/02

- . with tools on horizontal shaft transverse to direction of travel

A01B 33/021

- .. { with rigid tools }

A01B 33/022

- ... { with helicoidal tools }

A01B 33/024

- ... { with disk-like tools }

A01B 33/025

- .. { with spring tools, i.e. resiliently- or flexibly-attached rigid tools }

A01B 33/027

- .. { Operator supported tools, e.g. using a harness for supporting the tool or power unit }

A01B 33/028

- .. { of the walk-behind type (walk-type tractors [B62D 51/04](#))}

A01B 33/04

- . with tools on horizontal shaft parallel to direction of travel

A01B 33/06

- . with tools on vertical or steeply-inclined shaft

A01B 33/065

- .. { comprising a plurality of rotors carried by an elongate, substantially closed transmission casing, transversely connectable to a tractor }

A01B 33/08

- . Tools; Details, e.g. adaptations of transmissions or gearings

A01B 33/082

- .. { Transmissions; Gearings; Power distribution }

A01B 33/085

- ... { specially adapted for tools on a vertical shaft }

A01B 33/087

- .. { Lifting devices; Depth regulation devices; Mountings }

A01B 33/10

- .. Structural or functional features of the tools; { Theoretical aspects of the cutting action }

A01B 33/103

- ... { the rotating shaft being oriented horizontally }

- A01B 33/106 . . . { the rotating shaft being oriented vertically or steeply inclined }
- A01B 33/12 . . Arrangement of the tools; Screening of the tools
- A01B 33/125 . . . { screening of tools rotating about a vertical shaft }
- A01B 33/14 . . Attaching the tools to the rotating shaft, e.g. resiliently { or flexibly }-attached tools
- A01B 33/142 . . . { the rotating shaft being oriented horizontally }
- A01B 33/144 { with spring tools or resiliently-attached rigid tools }
- A01B 33/146 . . . { the rotating shaft being oriented vertically or steeply inclined }
- A01B 33/148 { with spring tools or resiliently-attached rigid tools }

- A01B 33/16 . with special additional arrangements ([A01B 49/00](#) takes precedence; for sowing or fertilising [A01B 49/06](#))

- A01B 35/00** **Other machines for working soil** { not specially adapted for working soil on which crops are growing } ([A01B 37/00](#) , [A01B 39/00](#) , [A01B 77/00](#) take precedence; { hand tools [A01B 1/00](#) })

- A01B 35/02 . with non-rotating tools
- A01B 35/04 . . drawn by animal or tractor { or man-power }
- A01B 35/06 . . . with spring tools { or with resiliently- or flexibly-attached rigid tools }
- A01B 35/08 . . . with rigid tools
- A01B 35/10 . . mounted on tractors
- A01B 35/12 . . . with spring tools { or with resiliently-or flexibly-attached rigid tools }
- A01B 35/14 . . . with rigid tools

- A01B 35/16 . with rotating or circulating non-propelled tools

- A01B 35/18 . with both rotating and non-rotating tools

- A01B 35/20 . Tools; Details
- A01B 35/22 . . non-rotating tools; { Resilient or flexible mounting of rigid tools }
- A01B 35/225 . . . { the tools being adapted to allow the chisel point to be easily fitted or removed from the shank }
- A01B 35/24 . . . Spring tools
- A01B 35/26 . . . Rigid tools
- A01B 35/28 . . Rotating tools; Mounting rotating tools
- A01B 35/30 . . Undercarriages ([A01B 23/04](#) takes precedence)

- A01B 35/32 . with special additional arrangements

- A01B 37/00** **Devices for loosening soil compacted by wheels or the like**

- A01B 39/00** **Other machines specially adapted for working soil on which crops are growing**

- A01B 39/02 . with non-rotating tools
- A01B 39/04 . . drawn by animal or tractor

- A01B 39/06 . . Self-propelled machines
- A01B 39/08 . with rotating tools { such as weeding machines }
- A01B 39/085 . . { the rotating tools being actively driven }
- A01B 39/10 . with oscillating tools { driven or not }
- A01B 39/12 . for special purposes, { e.g. for special culture }
- A01B 39/14 . . for working ridges, { e.g. for rows of plants and/or furrows }
- A01B 39/16 . . for working in vineyards, orchards, or the like; { Arrangements for preventing damage to vines (ploughs adapted for working in vineyards [A01B 13/06](#)) }
- A01B 39/163 . . . { comprising rotating tools }
- A01B 39/166 { actively driven }
- A01B 39/18 . . for weeding
- A01B 39/19 . . . Rod weeders, i.e. weeder with rotary rods propelled beneath the soil surface
- A01B 39/20 . Tools; Details
- A01B 39/22 . . Tools; Mounting tools
- A01B 39/24 . . Undercarriages ([A01B 23/04](#) takes precedence)
- A01B 39/26 . . Arrangements for protecting plants, { e.g. fenders }
- A01B 39/28 . with special additional arrangements ([A01B 49/00](#) takes precedence)
- A01B 41/00 Thinning machines**
- A01B 41/02 . with oscillating tools
- A01B 41/04 . with rotating tools
- A01B 41/06 . with electric, e.g. photo-electric control of thinning operations
- A01B 43/00 Gatherers for removing stones, undesirable roots of the like from the soil, e.g. tractor-drawn rakes { for harvesting root crops [A01D](#) }**
- A01B 43/005 . { Windrower-type machines }
- A01B 45/00 Machines for treating meadows or lawns, { e.g. for sports grounds }**
- A01B 45/02 . for aerating
- A01B 45/023 . . { Perforators comprising spiking tools actively driven in a reciprocating movement through a crankshaft or eccentric mechanism }
- A01B 45/026 . . { Scarifiers comprising a knife reel actively driven around a substantially horizontal shaft }
- A01B 45/04 . for cutting sods or turves { machines for lifting and treating soil [A01B 77/00](#) }
- A01B 45/045 . . { the machine being adapted for stacking sods or sod rolls }
- A01B 47/00 Soil-working with electric potential applied between tools and soil**

A01B 49/00 **Combined machines** (auxiliary devices attached to machines of a different kind, e.g. harrows attached to ploughs, see the relevant groups for the machines)

- A01B 49/02 . with two or more soil-working tools of different kind
- A01B 49/022 .. { at least one tool being actively driven }
- A01B 49/025 ... { about a substantially vertical axis }
- A01B 49/027 .. { with a rotating, soil working support element, e.g. a roller }
- A01B 49/04 . Combinations of soil-working tools with non-soil-working tools, e.g. planting tools { seeding machines [A01C 7/00](#) ; harvesters combined with soil-working implements [A01D 43/12](#) }
- A01B 49/06 .. for sowing or fertilising
- A01B 49/065 ... { the soil-working tools being actively driven }

Guidance heading: **Parts, details or accessories of agricultural machines or implements, in general** (seat constructions [A47C](#) ; wheels [B60B](#) ; shelters for drivers [B60J](#) ; seats specially adapted for vehicles [B60N 2/00](#) ; wheel scrapers [B60S 1/68](#))

A01B 51/00 **Undercarriages specially adapted for mounting-on various kinds of agricultural tools or apparatus** (general vehicle aspects, see the relevant subclass of class [B60](#) or [B62](#))

- A01B 51/02 . propelled by a motor
- A01B 51/023 .. { of the Gantry-type }
- A01B 51/026 .. { of the automotive vehicle type, e.g. including driver accomodation ([A01B 51/023](#) takes precedence) }
- A01B 51/04 . drawn by animal or tractor
- A01B 51/045 .. { drawn by animals }

A01B 59/00 **Devices specially adapted for connection between animals or tractors and agricultural machines or implements** ([A01B 63/00](#) takes precedence; vehicle connections in general [B60D](#); draught assemblies for animal drawn vehicles, in general [B62C 5/00](#))

- A01B 59/002 . { Details, component parts }
- A01B 59/004 .. { Length-adjustable links }
- A01B 59/006 .. { Latched hooks }
- A01B 59/008 .. { Link connectors with spherical surfaces }
- A01B 59/02 . for animal-drawn machines
- A01B 59/04 . for machines pulled or pushed by a tractor
- A01B 59/041 .. preventing or limiting side-play of implements (preventing overstrain [A01B 61/00](#))
- A01B 59/0415 ... { by hydraulic or pneumatic means acting on the lower draft links }

- A01B 59/042 . . having pulling means arranged on the rear part of the tractor
- A01B 59/043 . . . supported at three points, e.g. by quick-release couplings ([A01B 59/06](#) takes precedence)
- A01B 59/044 . . having pulling means arranged on the middle part of the tractor
- A01B 59/046 . . having pulling or pushing means arranged on the side of the tractor
- A01B 59/048 . . having pulling or pushing means arranged on the front part of the tractor

- A01B 59/06 . for machines mounted on tractors
- A01B 59/061 . . { specially adapted for enabling connection or disconnection controlled from the driver's seat (not used, see subgroups)}
- A01B 59/062 . . . { the connection comprising a rigid interface frame on the tractor }
- A01B 59/063 . . . { the connection comprising longitudinally oriented tang-and-sheath elements }
- A01B 59/064 . . { for connection to the front of the tractor }
- A01B 59/065 . . { for ploughs or like implements ([A01B 59/061](#) and subgroups take precedence) }
- A01B 59/066 . . { of the type comprising at least two lower arms and one upper arm generally arranged in a triangle (e.g. three-point hitches) }
- A01B 59/067 . . . { the lower arms being lifted or lowered by power actuator means internally incorporated in the tractor }
- A01B 59/068 . . . { the lower arms being lifted or lowered by power actuator means provided externally on the tractor }
- A01B 59/069 . . { with means for weighing the implement }

- A01B 61/00** **Devices for, or parts of, agricultural machines or implements for preventing overstrain** (preventing overstrain in vehicle connections, in general [B60D](#); preventing overstrain in couplings per se [F16D](#))

- A01B 61/02 . of the coupling devices between tractor and machine
- A01B 61/025 . . { the driving connections }

- A01B 61/04 . of the connection between tools and carrier beam or frame
- A01B 61/042 . . { with shearing devices }
- A01B 61/044 . . { the connection enabling a yielding pivoting movement around a substantially horizontal and transverse axis }
- A01B 61/046 . . . { the device including an energy accumulator for restoring the tool to its working position }
- A01B 61/048 { the connection or the energy accumulator being active in two opposite directions, e.g. for reversible plows }

- A01B 63/00** **Lifting or adjusting devices or arrangements for agricultural machines or implements** (lifting mechanisms for the cutter-bar of a mower [A01D 34/24](#) ; adjusting devices for the cutter-bar of a mower [A01D 34/28](#) ; constructional features of lifting devices per se [B66F](#))

- A01B 63/002 . { Devices for adjusting or regulating the position of tools or wheels (preventing overstrain [A01B 61/00](#) ; regulating working depth of implements mounted on tractors [A01B 3/111](#) ; wheels adjustable relatively to the frame for drawn implements [A01B 3/16](#) ; tools or tool holders adjustable relatively to the frame for drawn implements [A01B 63/24](#)) }

WARNING

Documents of group [A01B 63/002](#) and subgroups are in the process of being reorganised to groups [A01B 63/111](#) , [A01B 63/16](#) , [A01B 63/24](#)

- A01B 63/004 .. { Lateral adjustment of tools }
- A01B 63/006 .. { Lateraladjustment of wheels }
- A01B 63/008 .. { Vertical adjustment of tools ([A01B 63/10](#) takes precedence) }

- A01B 63/02 . for implements mounted on tractors
- A01B 63/023 .. { Lateral adjustment of their tools }
- A01B 63/026 .. { Lateral adjustment of their wheels }
- A01B 63/04 .. Hand devices; Hand devices with mechanical accumulators, e.g. springs
- A01B 63/045 ... { for vertically adjusting wheels or similar rotary supporting elements }
- A01B 63/06 .. operated mechanically by tractor motor
- A01B 63/08 .. operated by the movement of the tractor
- A01B 63/10 .. operated by hydraulic or pneumatic means
- A01B 63/1006 ... { the hydraulic or pneumatic means structurally belonging to the tractor }
- A01B 63/1013 { and being located inside the tractor body }
- A01B 63/102 ... characterised by the location of the mounting on the tractor, e.g. on the rear part
- A01B 63/104 on the middle part, i.e. between front and rear wheels
- A01B 63/106 on the side
- A01B 63/108 on the front part
- A01B 63/11 ... for controlling weight transfer between implements and tractor wheels
- A01B 63/111 ... regulating working depth of implements
- A01B 63/1112 { using a non-tactile ground distance measurement, e.g. using reflection of waves }
- A01B 63/1115 { using a mechanical ground contact sensor }
- A01B 63/1117 { using a hitch position sensor }
- A01B 63/112 to control draught load, i.e. tractive force
- A01B 63/114 to achieve a constant working depth
- A01B 63/1145 { for controlling weight transfer between implements and tractor wheels }
- A01B 63/118 ... Mounting implements on power-lift linkages ([A01B 59/043](#) takes precedence; preventing or limiting side-play of implements [A01B 59/041](#) ; preventing overstrain [A01B 61/00](#))

- A01B 63/12 .. operated by an electric motor

- A01B 63/14 . for implements drawn by animals or tractors
- A01B 63/145 .. { for controlling weight transfer between implements and tractor wheels }
- A01B 63/16 .. with wheels adjustable relatively to the frame
- A01B 63/163 ... { laterally adjustable }
- A01B 63/166 ... { manually adjustable }
- A01B 63/18 ... with clutch between Z-type axle and wheel
- A01B 63/20 ... with gear and rack

- A01B 63/22 . . . operated by hydraulic or pneumatic means
- A01B 63/24 . . Tools or tool-holders adjustable relatively to the frame
- A01B 63/245 . . . { laterally adjustable }
- A01B 63/26 . . . by man-power
- A01B 63/28 . . . operated by the machine or implement
- A01B 63/30 . . . operated by motor power through a mechanical transmission
- A01B 63/32 . . . operated by hydraulic or pneumatic means { without automatic control }

A01B 67/00 **Devices for controlling the tractor motor by resistance of tools (preventing overstrain [A01B 61/00](#))**

A01B 69/00 **Steering of agricultural machines or implements; Guiding agricultural machines or implements on a desired track (vehicle course control in general [G05D 1/02](#))**

NOTE

In this group it is obligatory to classify subject-matter in the first appropriate place. It is however allowed to apply multiple classification where considered useful for search

- A01B 69/001 . { Steering by means of optical assistance, e.g. television cameras (steering devices for road marking vehicles [E01C 23/163](#)) }
- A01B 69/002 . { Steering or guiding on a substantially circular or spiral path }
- A01B 69/003 . { Steering or guiding of machines or implements pushed or pulled by or mounted on agricultural vehicles such as tractors, e.g. by lateral shifting of the towing connection }
- A01B 69/004 . . { automatic }
- A01B 69/005 . . { by an additional operator }
- A01B 69/006 . . { derived from the steering of the tractor }
- A01B 69/007 . { Steering or guiding of agricultural vehicles, e.g. steering of the tractor to keep the plough in the furrow }
- A01B 69/008 . . { automatic }
- A01B 69/02 . Ridge-marking or like devices; Checkrow wires; Accessories therefor
- A01B 69/022 . . { Ridge marking by deposition of a chemical substance, e.g. foam, on the surface of the soil }
- A01B 69/024 . . { adapted to cut and form a ridge or furrow in the soil surface, e.g. with a disc }
- A01B 69/026 . . { Checkrow wires }
- A01B 69/028 . . . { the wire being located above the ground }

A01B 71/00 **Construction or arrangement of setting or adjusting mechanisms, of implement or tool drive or of power take-off; Means for protecting parts against dust, or the like; Adapting machine elements to or for agricultural purposes {(adjusting mechanisms in general [G05G](#)) }**

- A01B 71/02 . Setting or adjusting mechanisms

- A01B 71/04 . Bearings of rotating parts, e.g. for soil-working discs ({ discs [A01B 15/16](#) , [A01B 23/06](#) } ; bearings in general [F16C](#))
- A01B 71/06 . Special adaptations of coupling means between power take-off and transmission shaft to the implement or machine (couplings for transmitting rotation [F16D](#))
- A01B 71/063 .. { for enabling transmission coupling and connection between tractor and implements to be controlled from the driver's seat }
- A01B 71/066 .. { for enabling pitch, roll or yaw movements of trailed implements or machines }
- A01B 71/08 . Means for protecting against dust, or the like, or for cleaning agricultural implements ([A01B 15/16](#) , [A01B 19/10](#) and [A01B 23/06](#) take precedence; screening of rotary driven tilling tools [A01B 33/12](#) ; screening of rotary parts in general [F16P 1/00](#))
- A01B 73/00** **Means or arrangements to facilitate transportation of agricultural machines or implements, e.g. folding frames to reduce overall width (arrangements of lifting devices for soil working implements [A01B 63/00](#) ; { carriers for harvesters or mowers [A01D 75/002](#) ; arrangements or carriers for haymakers [A01D 78/1007](#) , [A01D 80/005](#) ; } vehicles adapted for load transportation or to transport, to carry or to comprise special loads or objects [B60P](#) ; motor vehicles, trailers [B62D](#))**
- A01B 73/005 . { for endwise transportation, i.e. the direction of transport being substantially perpendicular to the direction of agricultural operation ([A01B 73/02](#) takes precedence) }
- A01B 73/02 . Folding frames
- A01B 73/04 .. foldable about a horizontal axis
- A01B 73/042 ... { specially adapted for actively driven implements }
- A01B 73/044 ... { the axis being oriented in a longitudinal direction [A01B 73/042](#) takes precedence }
- A01B 73/046 { each folding frame part being foldable in itself }
- A01B 73/048 ... { the axis being oriented in transverse direction [A01B 73/042](#) takes precedence }
- A01B 73/06 .. foldable about a vertical axis
- A01B 73/062 ... { of the type comprising four vertical folding axes each disposed at a substantially fixed location of a supporting frame }
- A01B 73/065 ... { to a position essentially forward of the axis, in relation to the direction of travel }
- A01B 73/067 ... { to a position essentially rearward of the axis, in relation to the direction of travel }
- A01B 75/00** **Carriers for supporting persons when working in the field, e.g. while thinning beet**
- A01B 76/00** **Parts, details or accessories of agricultural machines or implements, not provided for in groups [A01B 51/00](#) to [A01B 75/00](#)**
- A01B 77/00** **Machines for lifting and treating soil (biocides, pest repellants or attractants, plant growth regulators [A01N 25/00](#) to [A01N 65/00](#) ; fertilisers [C05](#) ; soil-conditioning or soil-stabilising materials [C09K 17/00](#))**

A01B 79/00 **Methods for working soil** (essentially requiring the use of particular machines, see the relevant groups for the machines)

A01B 79/005 . { Precision agriculture }

A01B 79/02 . combined with other agricultural processing, e.g. fertilising, planting