

CPC**COOPERATIVE PATENT CLASSIFICATION****A01C**

PLANTING; SOWING; FERTILISING (combined with general working of soil [A01B 49/04](#); parts, details or accessories of agricultural machines or implements, in general [A01B 51/00](#) to [A01B 75/00](#); { apparatus for spreading sand or salt [E01C](#); sowing and fertilising with aircraft [B64D 1/16](#) to [B64D 1/20](#) })

A01C 1/00

Apparatus, or methods of use thereof, for testing or treating seed, roots, or the like, prior to sowing or planting (chemicals therefor [A01N 25/00](#) to [A01N 65/00](#) { irradiation in general [B01J 19/08](#) })

A01C 1/005

- . { Potato seed cutters }

A01C 1/02

- . Germinating apparatus; Determining germination capacity of seeds or the like (germinating in preparation of malt [C12C 1/027](#))

A01C 1/025

- .. { Testing seeds for determining their viability or germination capacity }

A01C 1/04

- . Arranging seeds on carriers, e.g. on tapes, on cords { Carrier compositions }

A01C 1/042

- .. { Tapes, bands or cords }

A01C 1/044

- .. { Sheets, multiple sheets or mats }

A01C 1/046

- .. { Carrier compositions }

A01C 1/06

- . Coating or dressing seed ({ encapsulated embryos or artificial seeds [A01H 4/006](#); Seed coating compositions [C09D](#) })

A01C 1/08

- . Immunising seed

A01C 3/00

Treating manure; Manuring ({ ploughs with additional arrangements for putting manure under the soil [A01B 17/002](#) }; dung forks [A01D 9/00](#); { treating of waste water, sewage or sludge [C02F](#) } organic fertilisers from waste or refuse [C05F](#))

A01C 3/02

- . Storage places for manure, e.g. cisterns for liquid manure; Installations for fermenting manure (sewerage structures [E03F 5/00](#); silos, bunkers [E04H 7/22](#))

A01C 3/021

- .. { for composted manure }

A01C 3/023

- .. { Digesters }

A01C 3/025

- .. { with heat recuperation means }

A01C 3/026

- .. { with mixing or agitating devices }

A01C 3/028

- .. { Covers, roofs or other structures for covering manure storage places (production of methane or biogas [C02F 11/04](#); coverings for swimming or splash baths or pools [E04H 4/10](#)) }

A01C 3/04

- . Manure loaders (loaders in general [B65G](#))

A01C 3/06

- . Manure distributors, e.g. dung distributors

A01C 3/063

- .. { Side-spreaders }

A01C 3/066

- .. { Spreading by using worm or screw conveyors }

A01C 3/08

- .. for manure already laying on the soil

A01C 5/00**Making or covering furrows or holes for sowing, planting or manuring**

- A01C 5/02 . Hand tools for making holes for sowing, planting or manuring ([transplanting devices for trees A01G 23/02](#))
- A01C 5/04 . Machines for making or covering holes for sowing or planting
- A01C 5/045 .. { [with piercing buckets \(devices for laying-out or removing protective coverings for plants A01G 13/02 \)](#) }
- A01C 5/06 . Machines for making or covering drills or furrows for sowing or planting ({ [seeders depositing seeds in rows A01C 7/08](#) } ; [ploughs for making ridges A01B 13/02](#) ; { [lifting devices for agricultural machines A01B 63/00](#) })
- A01C 5/062 .. { [Devices for making drills or furrows](#) }
- A01C 5/064 ... { [with rotating tools](#) }
- A01C 5/066 .. { [Devices for covering drills or furrows](#) }
- A01C 5/068 ... { [Furrow packing devices, e.g. press wheels](#) }
- A01C 5/08 . Machines for both manuring and sowing or both manuring and planting

A01C 7/00**Sowing** ({ [with centrifugal wheels A01C 17/00](#) } [arrangements for driving working parts A01C 19/00](#))

- A01C 7/002 . { [Dibble seeders](#) }
- A01C 7/004 . { [using liquid seeding techniques](#) }
- A01C 7/006 . { [Minimum till seeding](#) }
- A01C 7/008 . { [Sod or grassland seeding \(\[A01C 7/08\]\(#\) takes precedence \)](#) }
- A01C 7/02 . Hand sowing implements ({ [fertiliser distributors for hand use A01C 15/02](#) ; [tools for cultivation A01G 1/12](#) })
- A01C 7/04 . Single-grain seeders with or without suction devices ({ [regulation A01C 7/10](#) ; [for quantities of seed A01C 7/18](#) })
- A01C 7/042 .. { [using pneumatic means](#) }
- A01C 7/044 ... { [Pneumatic seed wheels](#) }
- A01C 7/046 { [with perforated seeding discs](#) }
- A01C 7/048 .. { [Seed tape planters](#) }
- A01C 7/06 . Seeders combined with fertilising apparatus ({ [conducting and depositing seed A01C 7/20](#) ; [apparatus for two kinds of fertiliser A01C 15/00](#) } ; [combinations with soil working tools A01B 49/04](#))
- A01C 7/08 . Broadcast seeders; Seeders depositing seeds in rows ({ [machines for making furrows A01C 5/06](#) ; [combination of seed machines with other soil-working tools A01B 49/06](#) ; [foldable apparatus A01B 73/00](#) })
- A01C 7/081 .. { [Seeders depositing seeds in rows using pneumatic means](#) }

- A01C 7/082 ... { Ducts, distribution pipes or details thereof for pneumatic seeders (non-pneumatic seed pipes [A01C 7/206](#)) }
- A01C 7/084 ... { Pneumatic distribution heads for seeders }
- A01C 7/085 .. { Broadcast seeders }
- A01C 7/087 .. { Tramlining }
- A01C 7/088 .. { Sectional seeding }
- A01C 7/10 .. Devices for adjusting the seed-box { Regulation of machines for depositing quantities at intervals }
- A01C 7/102 ... { Regulating or controlling the seed rate }
- A01C 7/105 { Seed sensors }
- A01C 7/107 ... { Calibration of the seed rate }
- A01C 7/12 .. Seeders with feeding wheels
- A01C 7/121 ... { for sowing seeds of different sizes }
- A01C 7/122 { using more than one feeding wheel; using double-run feeding wheels }
- A01C 7/123 ... { Housings for feed rollers or wheels }
- A01C 7/124 { with top delivery of the seeds }
- A01C 7/125 { with bottom delivery of the seeds }
- A01C 7/126 ... { Stubbed rollers or wheels }
- A01C 7/127 ... { Cell rollers, wheels, discs or belts }
- A01C 7/128 { Cell discs }
- A01C 7/14 ... Seeders with spoon or bucket wheels
- A01C 7/16 .. Seeders with other distributing devices, e.g. brushes, discs, screws, slides ({ with distributing slots [A01C 15/06](#); with slides [A01C 15/124](#) }; with chains [A01C 15/18](#)) }
- A01C 7/163 ... { Gravity distributors }
- A01C 7/166 ... { Centrifugal distributors (pneumatic distributors [A01C 15/04](#)) }
- A01C 7/18 . Machines for depositing quantities of seed at intervals ({ dibble seeders [A01C 7/002](#); single-grain seeders [A01C 7/04](#); regulation [A01C 7/102](#); ridge marking [A01B 69/02](#) }) }
- A01C 7/185 .. { Foot valves }
- A01C 7/20 . Parts of seeders for conducting and depositing seed ({ combined with fertilising apparatus [A01C 7/06](#) }) }
- A01C 7/201 .. { Mounting of the seeding tools }
- A01C 7/203 ... { comprising depth regulation means }
- A01C 7/205 ... { comprising pressure regulation means }
- A01C 7/206 .. { Seed pipes }
- A01C 7/208 .. { Chassis; Coupling means to a tractor or the like; Lifting means; Side markers (hoppers for seeders or spreaders [A01C 15/006](#)) }
- A01C 9/00** **Potato planters** ({ planting by hand [A01C 7/02](#) }; combinations with soil working tools [A01B 49/04](#))
- A01C 9/02 . with conveyer belts
- A01C 9/04 . with bucket wheels ({ with other distributing devices [A01C 9/08](#) })

- A01C 9/06
 - . with piercing or grasping devices
- A01C 9/08
 - . with other distributing devices e.g. flaps, screws, horizontal turning plates {(with bucket wheels [A01C 9/04](#))}
- A01C 11/00** **Transplanting machines** {(hand sowing [A01C 7/02](#) }; carriers for supporting persons [A01B 75/00](#); transplanting devices for trees [A01G 23/02](#))
- A01C 11/003
 - . { for aquatic plants; for planting underwater, e.g. rice }
- A01C 11/006
 - . { Other parts or details or planting machines }
- A01C 11/02
 - . for seedlings
- A01C 11/025
 - . . { Transplanting machines using seedling trays; Devices for removing the seedlings from the trays }
- A01C 11/04
 - . for deeper setting or shifting of plants
- A01C 13/00** **Machines or apparatus for consolidating soil around plants**
- A01C 14/00** **Methods or apparatus for planting not provided for in other groups of this subclass**
- A01C 15/00** **Fertiliser distributors** ([A01C 7/06](#) takes precedence; { combined with seeders [A01C 7/06](#) }; arrangements for driving working parts [A01C 19/00](#); { harrows with special additional arrangements [A01B 19/00](#) }; sand, gravel or salt spreaders for roads [E01C 19/20](#))
- A01C 15/001
 - . { with slowly turning wheels }
- A01C 15/002
 - . { with oscillating distributing spouts }
- A01C 15/003
 - . { Bulk fertiliser or grain handling in the field or on the farm }
- A01C 15/005
 - . { Undercarriages, tanks, hoppers, stirrers specially adapted for seeders or fertiliser distributors }
- A01C 15/006
 - . . { Hoppers }
- A01C 15/007
 - . . . { with agitators in the hopper }
- A01C 15/008
 - . . { Aprons; Deflecting plates; Band-spreading attachments }
- A01C 15/02
 - . for hand use {(hand sowing [A01C 7/02](#))}
- A01C 15/04
 - . using blowers
- A01C 15/06
 - . with distributing slots, { i.e. for dosing, e.g. adjustable openings }
- A01C 15/08
 - . . with pushers or stirrers in the slots
- A01C 15/10
 - . . . with reciprocating pushers { or stirrers in front of the slots (with endless chains [A01C 15/18](#))}
- A01C 15/12
 - . with movable parts of the receptacle

- A01C 15/122 . . { with moving floor parts (with endless chains [A01C 15/18](#))}
- A01C 15/124 . . { with adjustable shutters or slits }
- A01C 15/126 . . . { with pushers or stirrers in the slits }
- A01C 15/128 . . . { with pushers or stirrers in front of the slits (with endless chains [A01C 15/18](#))}

- A01C 15/14 . with means for lifting out the fertiliser {(feeding wheels, cell wheels, discs [A01C 7/12](#), bucket wheels [A01C 7/14](#))}

- A01C 15/16 . with means for pushing out the fertiliser, e.g. by a roller

- A01C 15/18 . with endless chains, { i.e. side transporting elements, e.g. auger or screw conveyers, swash plates }

- A01C 17/00** **Fertilisers or seeders with centrifugal wheels** ({ hand-used implements [A01C 7/02](#), [A01C 15/02](#); fertiliser distributors [A01C 15/00](#) }; mechanical throwing machines for articles or solid bulk materials, in general [B65G 31/00](#); sand, gravel or salt spreaders [E01C 19/20](#))

- A01C 17/001 . { Centrifugal throwing devices with a vertical axis }
- A01C 17/003 . { Centrifugal throwing devices with a horizontal axis }
- A01C 17/005 . { Driving mechanisms for the throwing devices }
- A01C 17/006 . { Regulating or dosing devices }
- A01C 17/008 . . { Devices controlling the quantity or the distribution pattern }

- A01C 19/00** **Arrangements for driving working parts of fertilisers or seeders** {([A01C 17/005](#) takes precedence)}

- A01C 19/02 . by a motor
- A01C 19/04 . by a ground-engaging wheel
- A01C 19/045 . . { the drive coupling being controlled by lifting or lowering of the seeding tools }

- A01C 21/00** **Methods of fertilizing, { sowing or planting } (fertilisers [C05](#); soil-conditioning or soil-stabilising materials [C09K 17/00](#))**

- A01C 21/002 . { Apparatus for sowing fertiliser; Fertiliser drill }
- A01C 21/005 . { Following a specific plan, e.g. pattern (precision agriculture in general [A01B 79/005](#); steering or guiding agricultural machines or implements [A01B 69/00](#))}
- A01C 21/007 . { Determining fertilization requirements }

- A01C 23/00** **Distributing devices specially adapted for liquid manure or other fertilising liquid, including ammonia, e.g. transport tanks, sprinkling wagons (watering fields in general [A01G 25/00](#); spraying or applying liquids or other fluent materials in general [B05](#))**

- A01C 23/001 . { Sludge spreaders, e.g. liquid manure spreaders }

- A01C 23/002 . . { provided with auxiliary arrangements, e.g. pumps, agitators, cutters }
- A01C 23/003 . . { Distributing devices, e.g. for rotating, throwing }
- A01C 23/005 . . . { Nozzles, valves, splash plates }

- A01C 23/006 . { Distribution of liquid fertilisers by gravity flow (distribution of liquid ammonia in or on the soil [A01C 23/024](#); under pressure [A01C 23/04](#)) }

- A01C 23/007 . { Metering or regulating systems }

- A01C 23/008 . { Tanks, chassis or related parts }

- A01C 23/02 . Special arrangements for delivering the liquid directly into the soil
- A01C 23/021 . . { Sludge injectors, i.e. liquid manure injectors }
- A01C 23/022 . . . { Continuous injection tools (devices for making drill or furrows [A01C 5/066](#)) }
- A01C 23/023 . . { for liquid or gas fertilisers }
- A01C 23/024 . . . { for ammonia }
- A01C 23/025 . . . { Continuous injection tools }
- A01C 23/026 . . . { Localised non-continuous injection tools, e.g. pal injectors, spike wheels }
- A01C 23/027 . . { Other methods for delivering fertiliser into the soil (sowing granular fertiliser [A01C 21/002](#); subirrigation [A01G 25/06](#)) }
- A01C 23/028 . . . { Contactless injection into the soil }

- A01C 23/04 . Distributing under pressure; Distributing mud; Adaptation of watering systems for fertilising-liquids
- A01C 23/042 . . { Adding fertiliser to watering systems (adding insecticides or herbicides [A01M 7/00](#)) }
- A01C 23/045 . . { Filling devices for liquid manure or slurry tanks (arrangements for connecting hoses of the quick-acting type [F16L 37/00](#)) }
- A01C 23/047 . . { Spraying of liquid fertilisers (gravity flow [A01C 23/006](#); watering gardens, fields, sports grounds or the like [A01G 25/00](#)) }

- A01C 2001/00 Apparatus, or methods of use thereof, for testing or treating seed, roots, or the like, prior to sowing or planting (chemicals therefor [A01N 25/00](#) to [A01N 65/00](#) { irradiation in general [B01J 19/08](#)) }**

- A01C 2001/04 . Arranging seeds on carriers, e.g. on tapes, on cords { Carrier compositions }
- A01C 2001/048 . . Machines